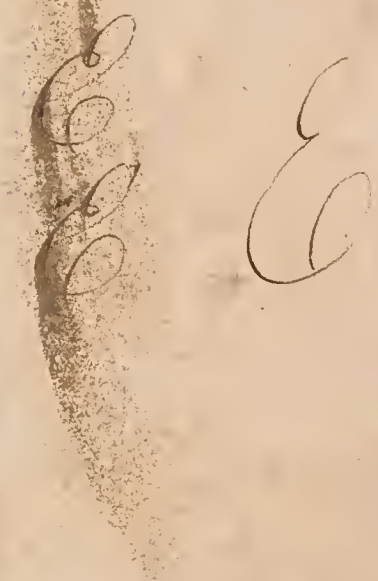
1706 see p 14

1707 p. 66, 67



Addition

The Rule is, in Farthings to stop or Dot at 4, in Pence at 12, in Shillings at 20, & in Pounds at 10. The Reason is, Because 4 Farthings make one Penny, 12 Pence 1 Shilling, & 20 Shillings make 1 Pound Sterling.

£	Sh:	d	qrs
772	19	06	1
458	18	02	0
092	17	00	2
567	00	11	0
675	07	10	3
756	05	04	2
200	01	00	0
3523	09	11	0
2950	10	04	3
3523	09	11	0

£	Sh:	d
320	12	06
203	00	02
032	02	03
487	13	10
204	07	00
590	00	05
010	02	03
1847	18	05
1527	05	11
1847	18	05

£	Sh:	d	qrs
21	05	00	¼
12	00	03	
10	15	10	½
45	08	07	
12	03	04	¼
11	05	11	
12	00	01	
124	19	01	
103	14	09	¾
124	19	01	

The Least Denomination of Troy Weight used in England, is a grain of Wheat Taken out of ye Middle of ye ear, & Dried, from whence is Produced The following Table viz:

32 Grains of Wheat
24 Artificial Grains
20 Penny Weights
12 Ounces

make

24 Artificials Grains one Penny Weight
one Ounce
one Pound.

With this weight is weighd the Things Following viz: Gold, Silver, Bread, Breadcorn, Meal, & all manner of Jewels, Precious Stones &c.

lb	oz	dw	gr
14	07	10	12
17	09	05	08
21	10	00	00
37	04	15	00
23	08	16	20
115	04	07	16
100	08	17	04
115	04	07	16

lb	oz	dw	gr
148	01	02	10
481	02	04	12
814	03	05	14
184	04	06	16
841	05	07	18
2469	04	06	22
2321	03	04	12
2469	04	06	22

Libra is a pound of any thing or every thing
Semis is ½ half of every weight
Manipulus is a greati handfull
Pugillus is a Small Do
Ana Signifyeth of every one a like much

Averdupoise weight

Is that whereby is Weighed, Led, Tinn, Iron, Brass, Pewter, &c:
All Grocery Wares, Tobacco, Flesh, Wax, Cheese, Rozin, Tallow, Pitch,
Leather, and all manner of Goods whereof Cometh any Garble, or Wast.

The Table is,

16 Drams	make	one Ounce,
16 Ounces		one Pound ℔,
28 Pound ℔		a Quarter of an Hundred,
56 Pound ℔		½ an Hundred,
84 Pound ℔		¾ of an Hundred,
4 qrs or 112 ℔ ℔		One Hundred,
20 Hundred ℔		one Tonn.

Tonns	℔	qrs	℔
314	07	2	23
143	05	1	14
439	04	0	27
341	02	3	19
413	01	2	18
134	08	1	24
1777	10	1	13
1463	02	2	18
1777	10	1	13

Hun	qrs	℔	oz
10	0	13	15
08	2	12	10
05	1	17	09
03	0	16	08
02	1	15	07
09	2	14	09
39	1	06	10
29	0	20	11
39	1	06	10

℔	oz	oz
14	13	12
10	12	14
07	09	06
03	15	13
17	08	05
02	03	00
56	15	02
42	01	06
56	15	02

The Table Follows.

4 Nails, 3 Quarters, 4 Quarters, 5 Quarters } make { 1 Quarter of a Yard, 1 Flemish or Dutch Ell, 1 Yard, 1 English Ell.

Or

12 Nails, 16 Nails, 20 Nails } make { 1 Duck Ell, 1 Yard, 1 Ell English.

Ells	qrs	n
317	2	1
173	1	2
731	0	3
371	2	1
713	0	3
2307	1	2
1989	2	1
2307	1	2

Yds	qrs	n
520	2	0
205	3	3
052	1	0
502	0	2
025	0	3
253	0	1
1559	2	1
1039	0	1
1559	2	1

Engs	qrs	n
649	4	3
496	3	2
964	2	1
694	0	2
946	1	3
469	2	1
4221	0	0
3571	0	1
4221	0	0

The Least Denominative Part of Dry Measure is one Pint which is taken for one Pound $\overset{+}{w}$. Troy. The Tables Follows.

2 Pints	make	1 Quart,
2 Quarts		1 Pottle,
2 Pottles		1 Gallon,
2 Gallons		1 Peck
4 Pecks		1 Bushel Land Measure
5 Pecks		1 Bushel Water Measure
4 Bushels		1 Comb,
8 Bushels		1 Quarter,
4 Quarters		1 Chalder,
5 Quarters		1 Wey,
10 Qu^{trs} $\div$ 2 or 84 Bushels		1 Last.

Ch^{ds}	qrs	B:	Pe:
3 2 8	— 2	— 7	— 3
2 8 3	— 1	— 6	— 2
8 3 2	— 0	— 5	— 1
3 8 2	— 2	— 4	— 3
8 2 3	— 3	— 3	— 0
2 3 8	— 1	— 0	— 2
28 8 9	= 0	= 3	= 3
25 6 0	= 1	= 4	= 0
28 8 9	= 0	= 3	= 3

The least Denominative Part, of This Measure is also a Pint Taken (as y^e Other) from Troy Weight. The Table followth

35 1/4 Solid Inches	make	1 Pint,
2 Pints		1 Quart,
2 Quarts		1 Pottle,
2 Pottles		1 Gallon,
8 Gallons		1 Firkin of Ale,
9 Gallons		1 Firkin of Beer,
2 Firkins		1 Kilderkin,
2 Kilderkins		1 Barrel,
1 1/2 Barrel		1 Hogshead Beer or Ale.

But in

Wine Measure,

28 7/8 Solid Inches	make	1 Pint,
2 Pints		1 Quart,
2 Quarts		1 Pottle,
2 Pottles		1 Gallon,
4 2 Gallons		1 Pierce,
6 3 Gallons		1 Hogshead,
8 4 Gallons		1 Pinchin,
2 Hogsheads		1 Pipe or Butt,
2 Pipes		1 Tunn of Wine.

It's originally Deduced from a Barly corn, taken out of ye Middle of ye Ear, & well Dryed, From whence is Derivd ye Following Table, viz:

3 Barly corns	make	1 Inch,
12 Inches		1 Foot,
3 Feet		1 Yard,
3 F: 9 Inches or yd 1/4		1 Ell,
5 Feet		1 Geometrical Pace,
6 Feet		1 Fathom,
5 yds 1/2 or 16 Feet 1/2		1 Statute Pole or Perch,
40 Poles or 220 yards		1 Furlong,
8 Furlongs or 320 Poles equal to 1760 yds		1 English Mile,
1056 Geometrical Paces		1 English Mile,
3 Miles		1 League,
20 Leagues or 60 Miles		1 Degree,
360 Degrees or 21600 Miles	are	Supposd to be ye Circumference of ye Earth & Sea, or Terrestial Globe.

Note that,

60 Seconds		1 Minute
60 Minutes		1 Hour,
24 Hours		1 Natural Day,
7 Days		1 Week,
4 Weeks		1 Month
13 Mo. 1 Day or 364 Days	make	1 Year according to ye Eng. acct.
52 Weeks		1 Year,
8760 Hours		1 Year &
525960 Minutes		1 Year.

Yrs	Mo.	Wks.	Dy.
5888	— 10	— 02	— 06
8885	— 00	— 02	— 01
1403	— 04	— 00	— 05
4031	— 11	— 00	— 00
0314	— 00	— 01	— 02
3140	— 07	— 00	— 05
23663	= 10	= 03	= 05
17775	= 00	= 02	= 06
23663	= 10	= 03	= 05

Note the Sun Aparently Compleats its Revolution in 365 Days 5 hours 48 Minutes 57 Seconds Dcc. which Space of Time is called a Solar Year and is 11 Minutes 3 Seconds Dcc. Less then the common Year used with us and from hence comes That Difference there is betwixt the Old Stile and the New.

Teacheth to take a Lesser Number from a Greater, or an Equal from an Equal, Thereby to Know ye Difference, or ye Remainder,

From	4168543210642	723458603045 2784 From
Take	1084532100530	6134579231581031 Take
Remains	2084011110112	1100006798871753 Remains
Proof	4168543210642	723458603045 2784 Proof,

	£	Sh	d		£	Sh	d
If Bo 2d	1032	14	00	If Bo 2d	5280	14	11
If p d imp t	0203	11	00	If p d imp t	4170	11	10
Remains	0829	03	00	Remains	1110	03	01
Proof	1032	14	00	Proof	5280	14	11

	£	Sh	d	qrs	£	Sh	d
If Lent	871482	00	07	3	7214	00	00
Paid at Times	10340	02	01	1	1480	02	01
	24030	00	00	0	0821	01	00
	03140	00	02	0	4621	00	03
Pd in Pt	339971	02	04	2	0291	08	08
Proof	871482	00	07	3	7214	00	00

Money.

℔ Cents	£ 72181	Sh: — 00	d. — 00
℔ Sold at Divers Times	1347	— 08	— 09 ¼
	3571	— 02	— 03 ½
	5713	— 04	— 05 ¼
	7135	— 06	— 07 ¾
	1753	— 02	— 01 ¾
	7531	— 00	— 00
	5317	— 06	— 05 ½
	3175	— 04	— 03 ¼
	35553	= 15	= 00 ¼
	36627	= 04	= 11 ¾
	72181	= 00	= 00

Weight.

℔ Bo℔	Tonns	℔	℔	oz	Dw
	372	— 01	— 0	— 12	— 09 — 04
℔ Sold at Several Times	10	— 00	— 0	— 00	— 00 — 00
	95	— 09	— 0	— 24	— 04 — 00
	17	— 14	— 2	— 15	— 10 — 12
	28	— 10	— 3	— 27	— 00 — 00
	82	— 15	— 1	— 14	— 00 — 00
	00	— 12	— 2	— 16	— 14 — 09
	00	— 00	— 3	— 10	— 12 — 15
	74	— 19	— 3	— 27	— 15 — 14
	220	= 03	= 2	= 24	= 10 = 02
	151	= 17	= 1	= 15	= 15 = 02
	372	= 01	= 0	= 12	= 09 = 04

Time.

Yrs	Mo	W	D	Hr	M
1706	— 00	— 0	— 0	— 00	— 00
103	— 09	— 0	— 0	— 00	— 00
097	— 00	— 0	— 0	— 00	— 00
038	— 06	— 0	— 0	— 00	— 00
027	— 08	— 2	— 0	— 00	— 00
019	— 03	— 3	— 3	— 03	— 03
007	— 08	— 1	— 2	— 09	— 10
005	— 04	— 2	— 6	— 19	— 53
195	— 00	— 0	— 0	— 00	— 00
001	— 00	— 0	— 0	— 00	— 01
494	= 01	= 1	= 5	= 08	= 07
211	= 11	= 2	= 1	= 15	= 53
1706	= 00	= 0	= 0	= 00	= 00

Measure.

Leagues	M	Fub	yds	Feet	Inch
3701	— 0	— 0	— 000	— 0	— 00
844	- 2	- 0	— 000	- 0	- 00
471	- 0	- 1	— 000	- 0	- 00
006	- 1	- 2	— 195	- 1	- 10
004	- 2	- 3	- 004	- 2	- 11
000	- 1	- 4	- 212	- 0	- 09
000	- 2	- 6	- 219	- 1	- 04
009	- 0	- 5	- 119	- 0	- 07
087	- 0	- 0	- 000	- 1	- 00
1424	= 2	= 0	= 091	= 2	= 05
2276	= 0	= 7	= 128	= 0	= 07
3701	= 0	= 0	= 000	= 0	= 00

1st Is an Abridgement or Contraction of Addition, Solving that at once, which will require Several Additions to perform it.

2dly Multiplication is an Operation of 2 Nos of a Like Kind, (whether simple or Compound) for ye Production of a 3d which shall bear ye same proportion to ye 1st (or multiplicand) as ye 2d (or Multiplier) Does to unity.

3d Multiplication is Compos'd or Made up of 3 Parts or Branches. viz:

1st The Multiplicand, or No given to be Multiply'd,

2dly The Multiplier or No given to Multiply by,

3dly The Product or Total sum Produced by ye Operation.

The Table.

1	2	3	4	5	6	7	8	9
2	4	6	8	10	12	14	16	18
3	6	9	12	15	18	21	24	27
4	8	12	16	20	24	28	32	36
5	10	15	20	25	30	35	40	45
6	12	18	24	30	36	42	48	54
7	14	21	28	35	42	49	56	63
8	16	24	32	40	48	56	64	72
9	18	27	36	45	54	63	72	81

2727103 × 2 = 5458206

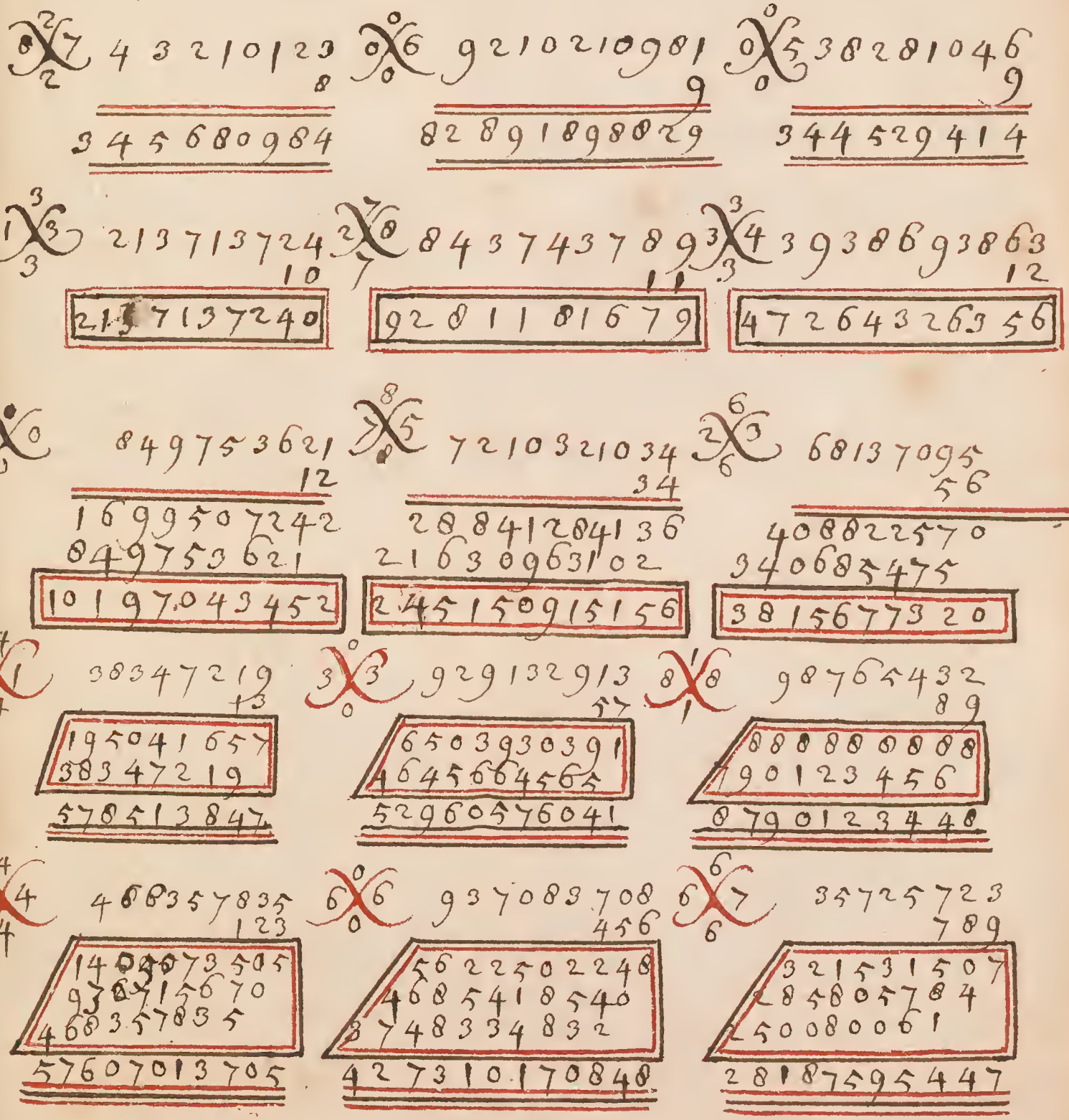
3739486 × 3 = 11218458

4517631863 × 4 = 20705274556

62412416 × 5 = 312062080

102035203 × 6 = 612211218

947247219 × 7 = 6630730533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3 4 5 6 8 0 9 8 4
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5 3 8 2 8 1 0 4 6
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2 1 3 7 1 3 7 2 4
2 1 3 7 1 3 7 2 4 0
8 4 3 7 4 3 7 8 9
9 2 8 1 1 8 1 6 7 9
3 9 3 8 6 9 3 8 6 3
4 7 2 6 4 3 2 6 3 5 6
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2 8 8 4 1 2 8 4 1 3 6
2 1 6 3 0 9 6 3 1 0 2
2 4 5 1 5 0 9 1 5 1 5 6
6 8 1 3 7 0 9 5
4 0 8 8 2 2 5 7 0
3 4 0 6 8 5 4 7 5
3 8 1 5 6 7 7 3 2 0
3 8 3 4 7 2 1 9
1 9 5 0 4 1 6 5 7
3 8 3 4 7 2 1 9
5 7 8 5 1 3 8 4 7
9 2 9 1 3 2 9 1 3
6 5 0 3 9 3 0 3 9 1
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1 4 0 8 8 0 7 3 5 0 5
9 3 8 7 1 5 6 7 0
4 6 8 3 5 7 8 3 5
5 7 6 0 7 0 1 3 7 0 5
9 3 7 0 8 3 7 0 8
5 6 2 2 5 0 2 2 4 8
4 6 8 5 4 1 8 5 4 0
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3 5 7 2 5 7 2 3
3 2 1 5 3 1 5 0 7
2 8 5 8 0 5 7 8 4
2 5 0 0 8 0 0 6 1
2 8 1 8 7 5 9 5 4 4 7

6 6 4 6

3 2 7 1 9 2 7 1 9 3 1 4

1 2 3 4 5

1 6 3 5 9 6 3 5 9 6 5 7 0

1 3 0 8 7 7 0 8 7 7 2 5 6

9 8 1 5 7 8 1 5 7 9 4 2

6 5 4 3 8 5 4 3 8 6 2 8

3 2 7 1 9 2 7 1 9 3 1 4

4 0 3 9 1 9 4 1 1 9 9 3 1 3 3 0

3 3 4 3

9 4 9 3 2 4 9 3 2 9 8 5

6 7 8 9

8 5 4 3 9 2 4 3 9 6 8 6 5

7 5 9 4 5 9 9 4 6 3 8 8 0

6 6 4 5 2 7 4 5 3 0 8 9 5

5 6 9 5 9 4 9 5 9 7 9 1 0

6 4 4 4 9 6 6 9 7 0 0 3 5 1 6 5

3 3 1 3

3 9 3 8 6 3 7 2 1 4

1 2 3 4 5 6

2 3 6 3 1 8 2 3 2 8 4

1 9 6 9 3 1 8 6 0 7 0

1 5 7 5 4 5 4 8 8 5 6

1 1 8 1 5 9 1 1 6 4 2

7 8 7 7 2 7 4 4 2 8

3 9 3 8 6 3 7 2 1 4

4 8 6 2 4 8 3 9 5 8 9 1 5 8 4

5 5 1 5

3 6 9 4 6 9 4 3 8 2 1 9

7 8 9 8 7 6 5

1 8 4 7 3 4 7 1 9 1 0 9 5

2 1 6 8 1 8 6 2 9 3 1 4

2 5 8 6 2 8 6 0 6 7 5 3 3

2 9 5 5 7 5 5 5 0 5 7 5 2

3 3 2 5 2 2 4 0 4 3 9 7 1

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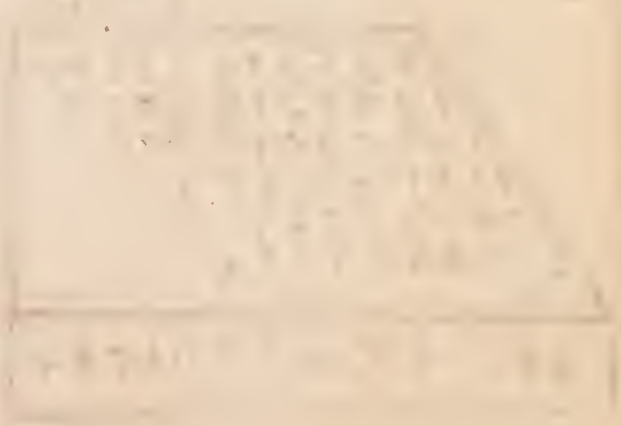

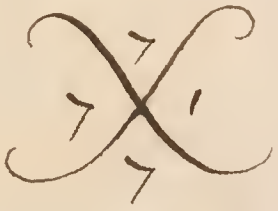

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8 2 8 9 3 1 3 0 6 7 8 6 1 2 8 0
6 4 4 7 2 4 3 4 9 7 2 2 5 4 4 0
4 6 0 5 1 7 3 9 2 6 5 8 9 6 0 0
2 7 6 3 1 0 4 3 5 5 9 5 3 7 6 0
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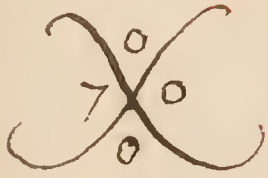

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1 5 7 2 3 4 6 8 9

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2 2 3 7 2 1 7 1 0 3 7 2 1 7 0 7 9 4 4
1 4 9 1 4 7 8 0 6 9 1 4 7 8 0 5 2 9 6
1 1 1 8 6 1 8 5 5 1 8 6 0 8 5 3 9 7 2
7 4 5 7 3 9 0 3 4 5 7 3 9 0 2 6 4 8
2 6 1 0 0 8 6 6 2 1 0 0 8 6 5 9 2 6 8
1 8 6 4 3 4 7 5 8 6 4 3 4 7 5 6 6 2 0
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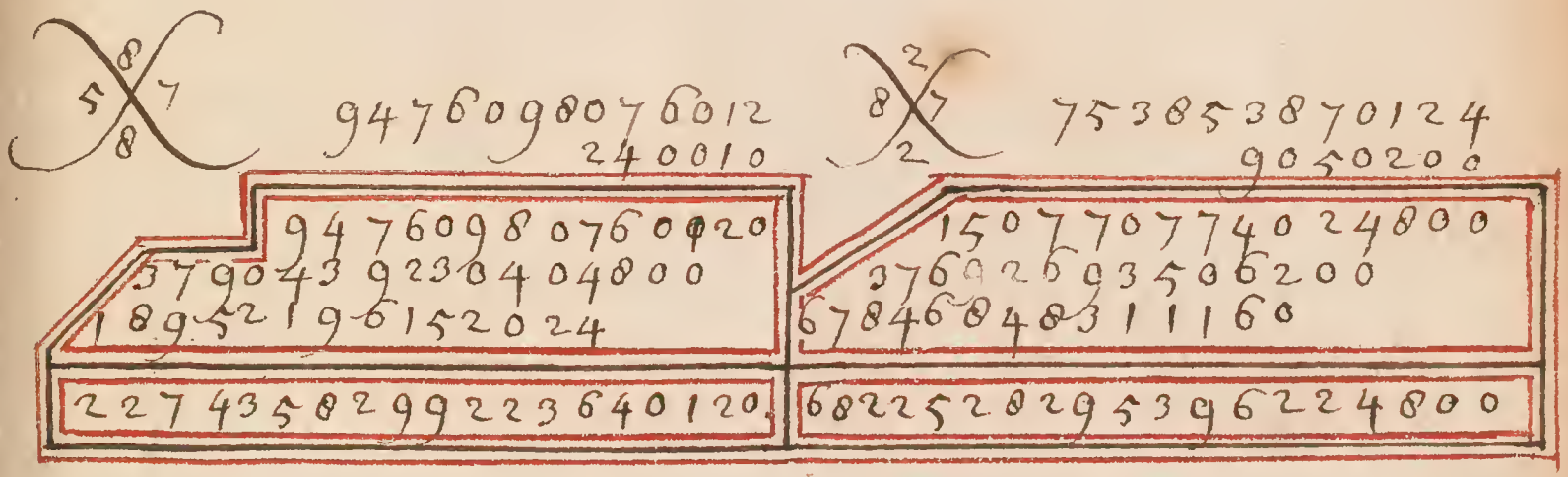
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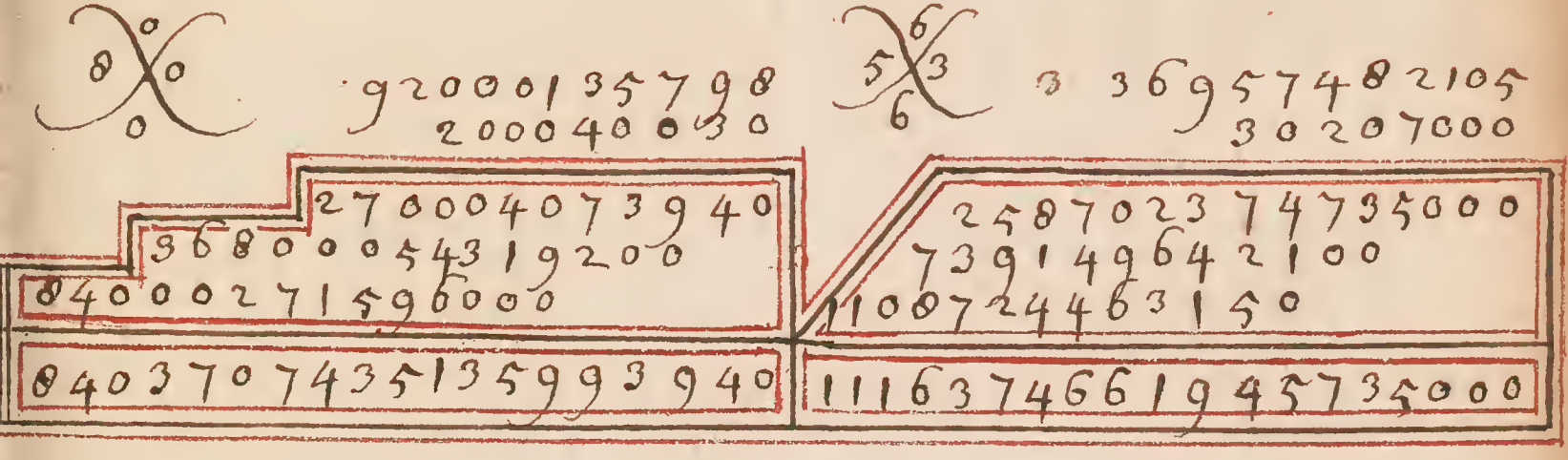
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3 3695748210 5
30207000
25870237473500 0
7391496421 00
1108724463150
1116374661945735000

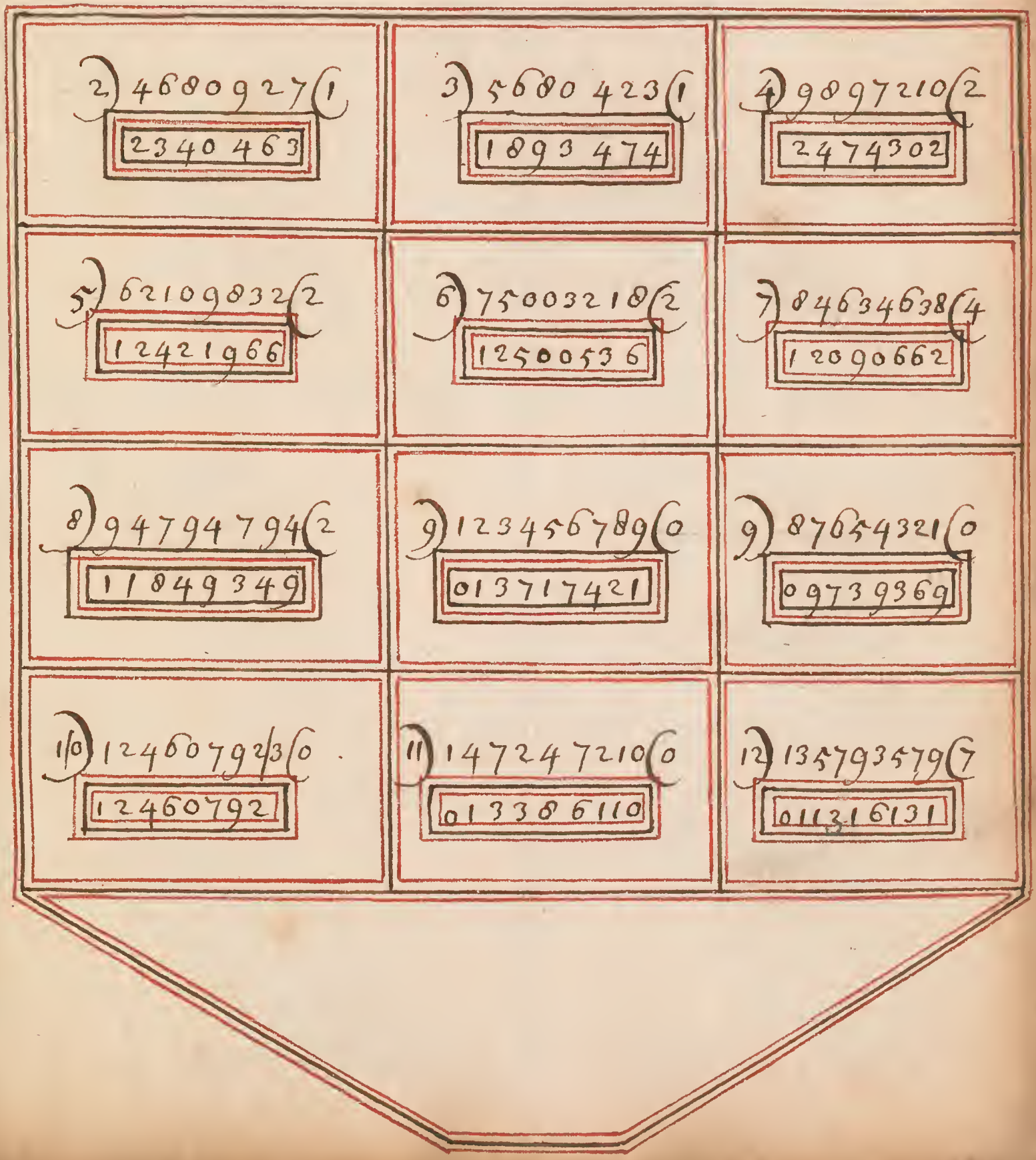
DIVISION is that by which we may Discover, how oft one Summ is Contain'd in another. In Division, there are 3 certain Branches and 1 uncertain one, viz:

1st The Dividend or Number given to be Divided.

2d The Divisor or Number given to Divide by.

3d The Quotient or Number of times ye Divisor is contain'd in ye Dividend.

These are certain Branches. The Remainder is call'd an uncertain Branch, because there are sometimes Remainders & sometimes none: And in working your Summ, this is Observable, that when you have a Remainder, it must be Less than ye Divisor, or else yr work is False. The Operation of this Rule, is by having 2 unequal Numbers given, to find a 3d, which shall bear such Proportion to ye Dividend, as ye Divisor Bears to unity. For Proof multiply ye Quotient by ye Divisor, & add to it ye Remainder (if any) & if ye Product be ye same with ye Dividend, ye Work is Right, or else not.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3 5680423 1
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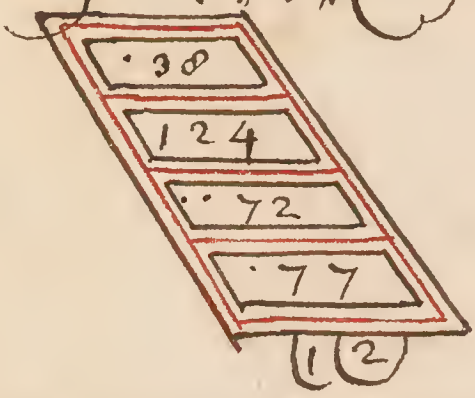

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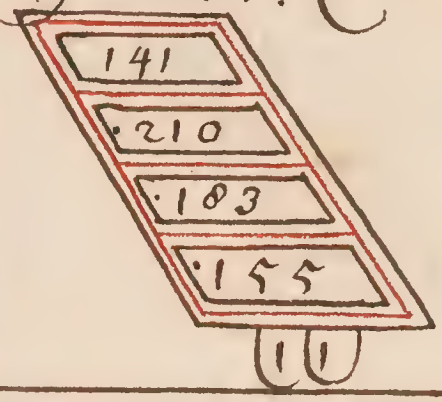

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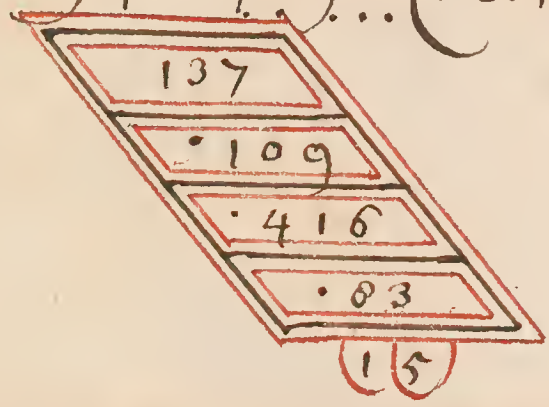

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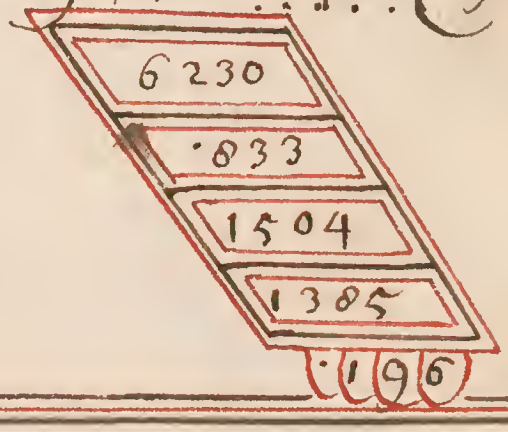

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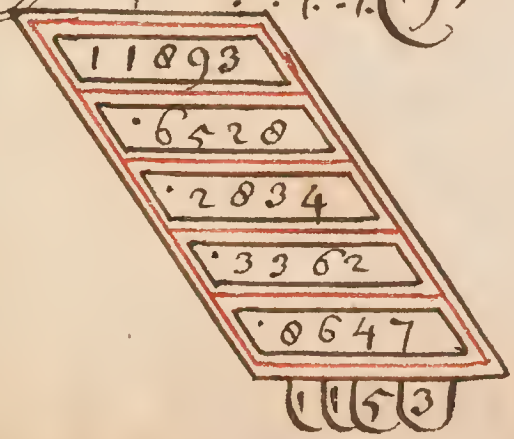
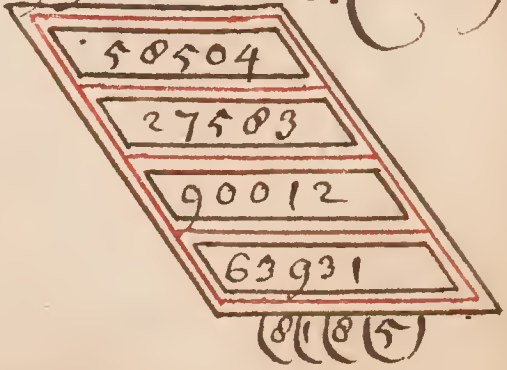


9291) 98760432 1 (106296



24032) 368472468 0 (15332 5

128152

·79924

·78286

·61908

138440

18280

35791) 468023579 1 (13076 5

110113

·274057

235209

204631

25676

472196) 9291721035 1 (19677 6

4569761

3199970

3667943

3625715

3203431

3702565

3271908) 92571630109 8 (28295 9

27133470

·9502061

3038 2450

1935 2789

2993 2498

·4853296

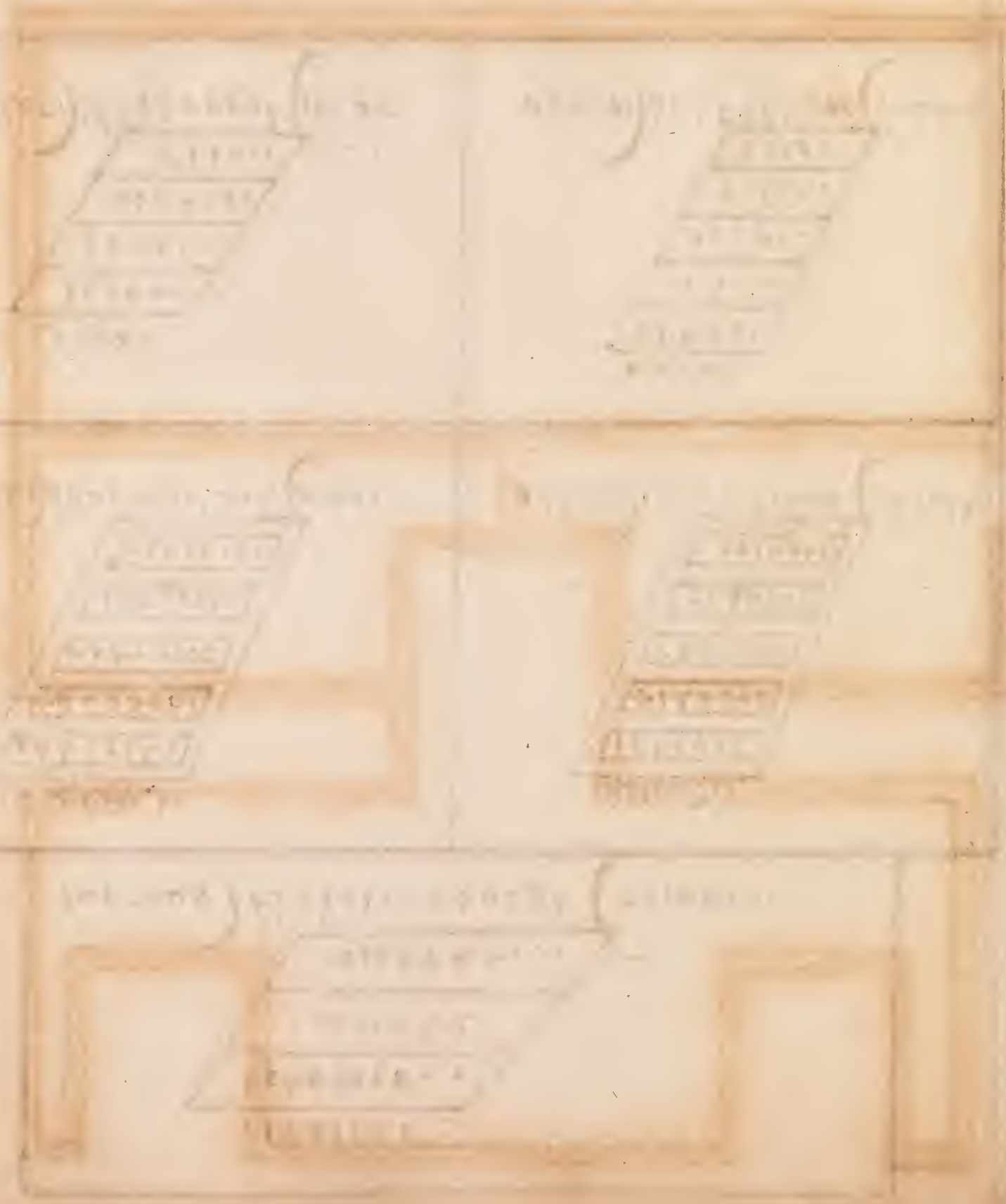
12340123) 98765432101234 (8003601

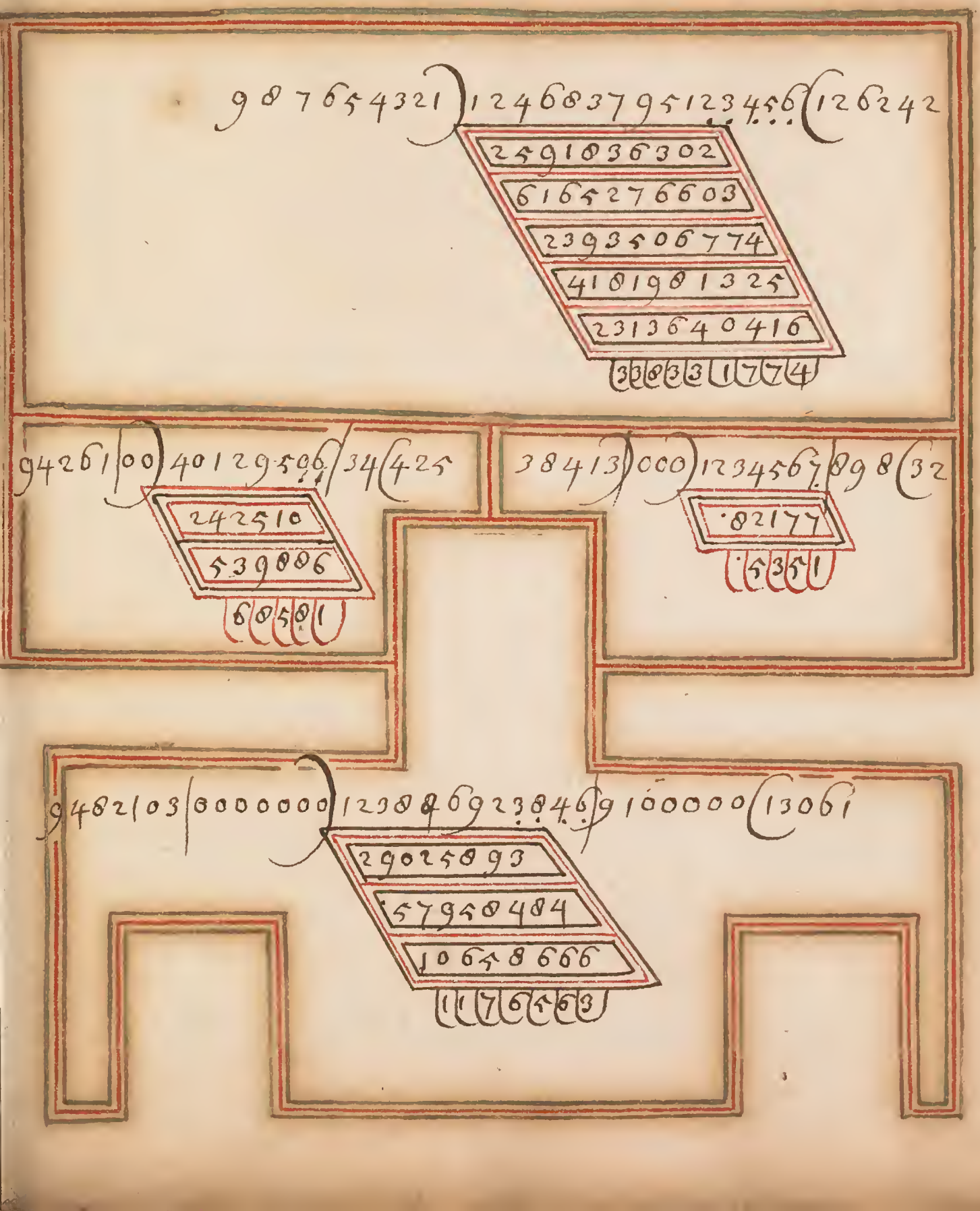
···44440101

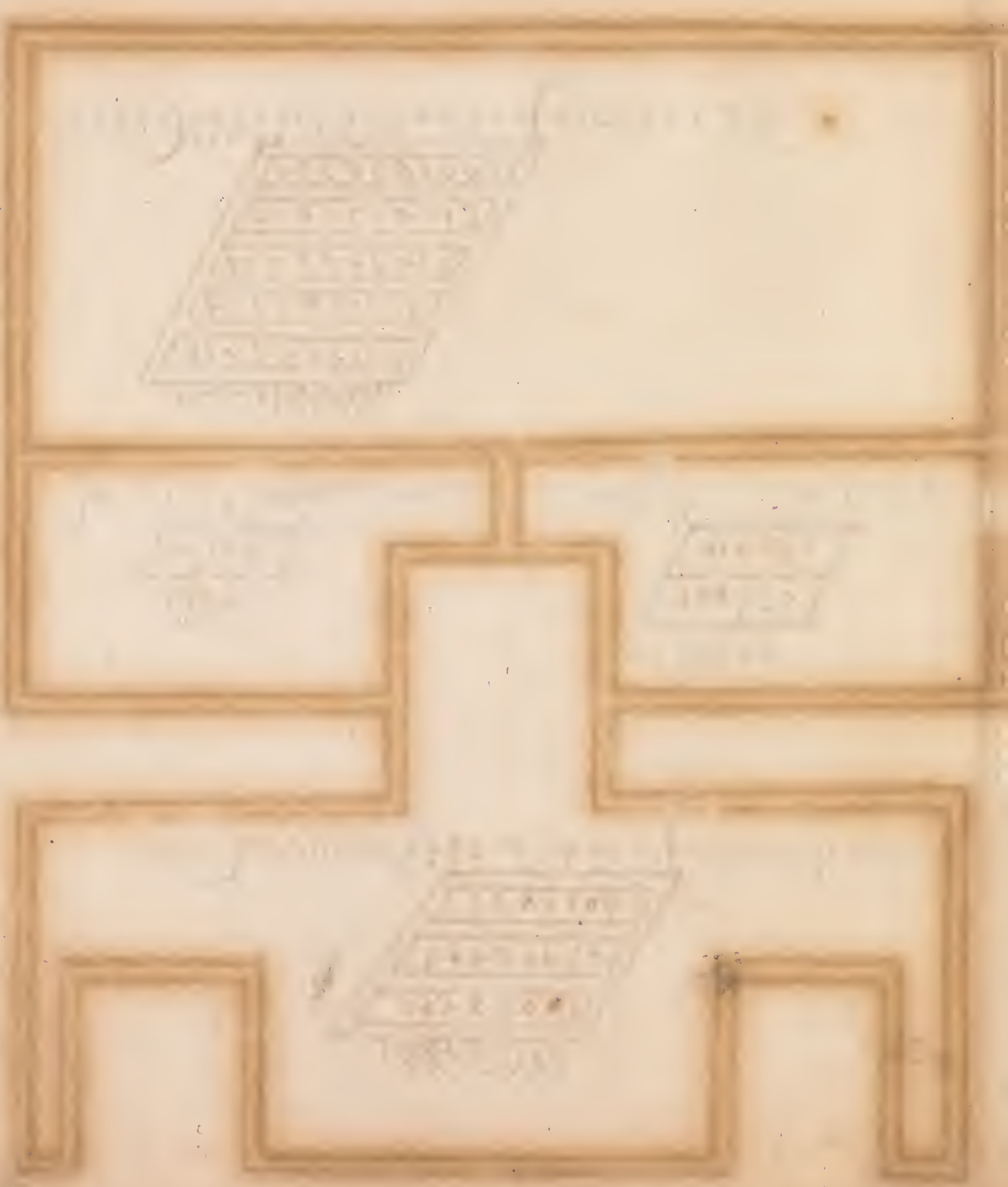
·74277322

··23650434

113183111




98765432) 124683795123456 (126242
2591836302
6165276603
2393506774
4181981325
2313640416
3383317774
94261|00) 4012959634 (425
242510
539886
60581
38413|000) 1234567898 (32
82177
5351
9482103|0000000) 123846923846 (1306
2902589 3
57945484
10648666
1176563



Reduction is ye converting or changing of one Name or Denomination into another, & is chiefly Performd by ye 2 Last Foregoing Rules. viz: by Multiplication and Division.

By Multiplication all greater Names or Denominations are Reduced or Brought in Less; as Pounds into shillings Pence & Farthings. And this usually calld Reduction Descending.

By Divisions all Lesser Names or Denominations are reduced or brought in ~~Less~~ Greater; as Farthings into Pence, Shillings & Pounds, & this is usually calld Reduction ascending. When you have a question set, you must first of all Consider which Part of this Rule it Belongs to, whether to Reduction Ascending or Descending: If it belongs to ye Former Part, then Multiply by as many of ye Lesser as makes one of ye greater. If it belongs to ye Latter Part, then Divide by as many of ye Lesser as shall make one of ye greater, & ye Quotient will answer ye Question in this Latter Part (as ye Product will answer it in ye Former) and if any thing remain, it will be of ye same Denomination with ye Dividend.

Coines & Wine Meas

	£	Sh	D
1 Sol of Sous, Fr: Piece	00	00	01
1 Liure, a Fr: Piece	00	01	08
1 George, or Half Crown	00	02	06
10 Groats	00	03	04
1 Dollar	00	04	04
1 Patacoon, a Flem.h Piece	00	04	06
1 English Crown	00	05	00
1 French Crown	00	06	00
1 Noble	00	06	08
1 Duckat	00	08	06
½ a Pistole or Lovisdor	00	08	06
1 Angel	00	10	00
1 Pistolett	00	11	07
1 Mark, or 2 Nobles	00	13	04
1 Duckatoon	00	15	00
1 Pistol or Lovisdor	00	17	00
3 Nobles	01	00	00
1 Flemish Rider	01	01	01½
1 Guinea	01	01	06
3 Marks	02	00	00

Two Pints	make	1 Quart
2 Quarts		1 Pottle.
2 Pottles		1 Gallon
18 Gallons		1 Runl. Cet
42 Gallons		1 Tierce
63 Gallons		1 Ho Hd
84 Gallons		1 Punchin
2 Hogsheads		1 Pipe or But
252 Gallons		
7 Rundlets		
4 Ho Hds		1 Tunn.
3 Punchins		
2 Pipes		
126 Gallons		1 Pipe

Ale Measure.

8 Gallons	make	1 Firkin.
16 Gallons		1 Kilderkin.
32 Gallons		
4 Firkins		1 Barrel.
2 Kilderkins		

Beer Measure

9 Gallons	make	1 Firkin
2 Firkins		1 Kilderkin
2 Kilderkins		1 Barrel.
4 Firkins		1 Barrel.
36 Gallons		1 Barrel

1 Barrel & ½ is 1 hogshead Beer or Ale.

Ex

3427 £ = 13 Sh = 03 ¼ d How many Farthings?

3427 £ = 13 Sh: 3 d ¼

3427 = 13 = 03 ¼

26 Sh: in 1 Pound

68553 Shillings.

12 Pence in 1 Shilling

822639 Pence

4 Farthings in 1 Penny

329057 Farthings

Ex

329057 Farthings how many Pence, Shillings & Pounds?

4) 329057 (1

12) 822639 (3 Pence

20) 68553 (13 Shillings

3427

Pounds.

Ans

£ Sh. ₰
9418 = 16 = 08 ½ How many Farthings

20

188376	Shillings
12	
2260520	Pence
4	
9042082	Farthings.

Ans

9042082 Farthings how many Pence, Shillings & Pounds?

4) 9042082 (2
12) 2260520 (8 Pence
20) 188376 (16 Shillings
9418
Pounds

a Penigen is. 9. $\frac{16}{12}$ grains which is $\frac{3}{4}$ of a Grain

12	6	3
16	8	4

16 Penigrens is a Stiver

11 Stivers - -- a Shilling

20 Stivers - -- a Guilder

11 Guilders - one Pound Sterling

16
11
16
16
176. ---- Penigens in a Shilling
20
3520 - --- in a Guilder
11
3520
3520
38720. - Penigens in a Pound Sterling.

IN 350000 Crowns how many Guilders?

3

1050000 Guilders

IN 1500000 Florins how many Patacoons?

20

54) 30000000 (555555 Patacoons

300

300

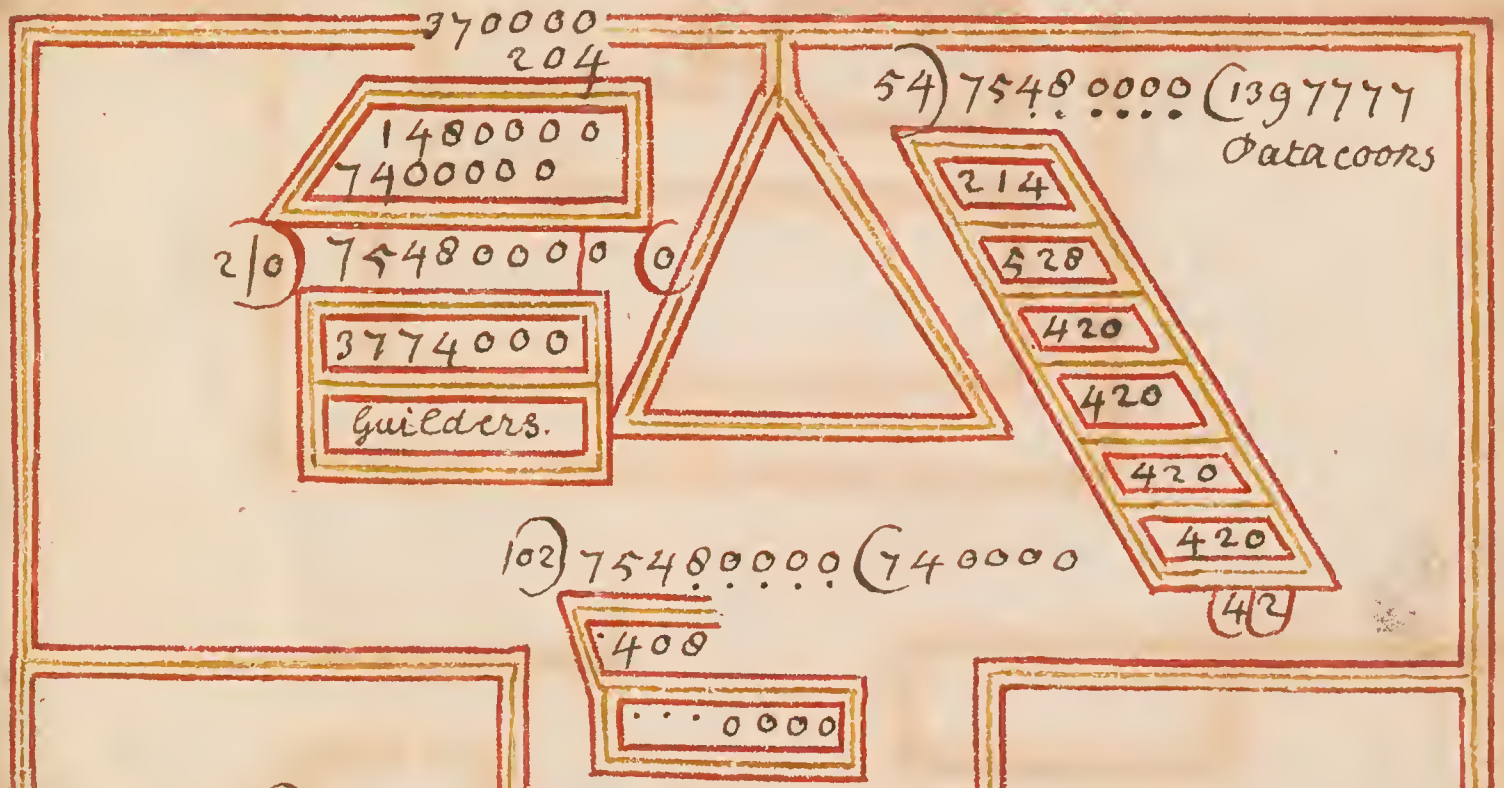
300

300

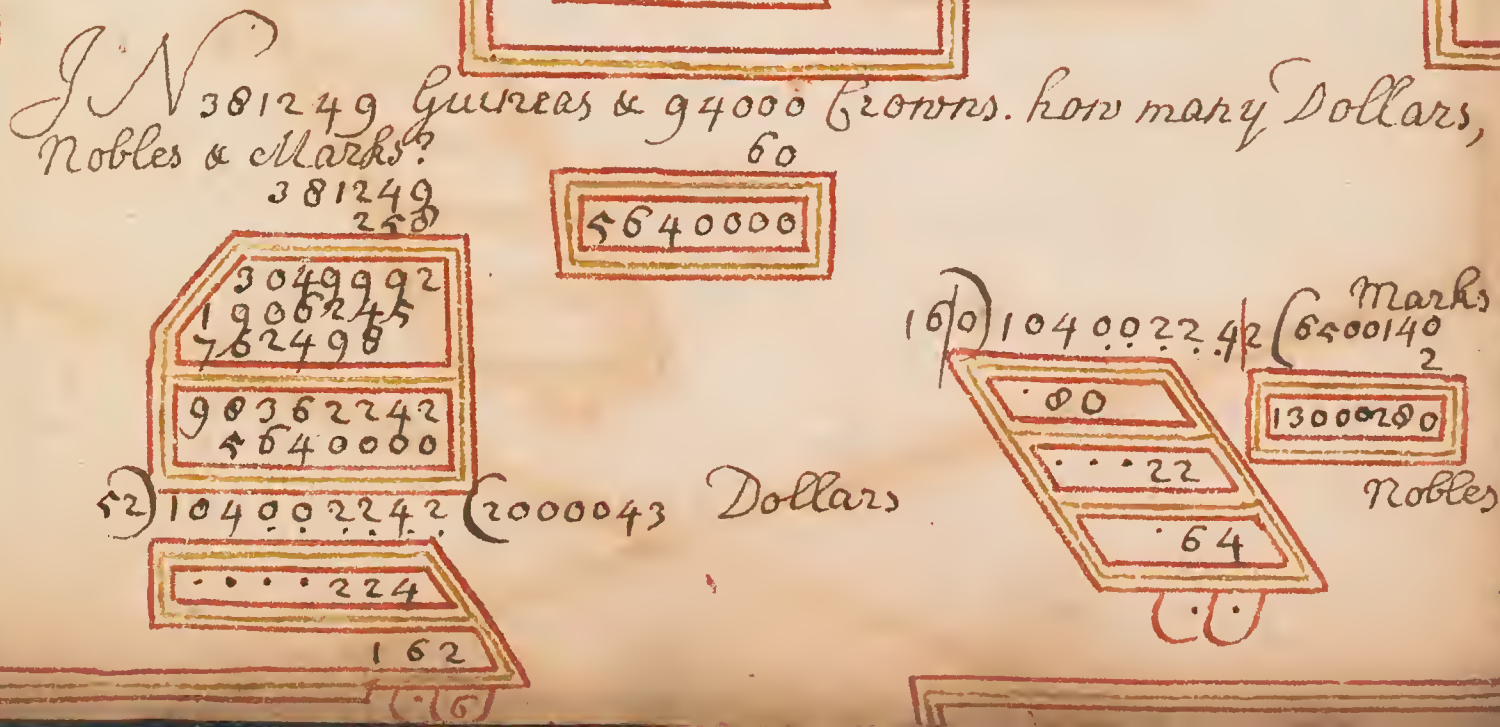
300

30

I N 370000 Lovisd'ors how many Guilders, Patacoons And Duckats?



J N 381249 Guineas & 94000 Crowns. how many Dollars, Nobles & Marks?



In £ 37804 How Many Guineas, Fl: Riders, Pistoles, Pistolets & Duckats?

37804
480

3024320
151216

516) 18145920 (35166
Guineas

1465
759
2032
1860

192

507) 18145920 (35790
Fl: Riders

2935
4009
4602

390

488) 18145920 (44475
Pistoles
2

88950
Ducketts

1825
1939
3072
2160

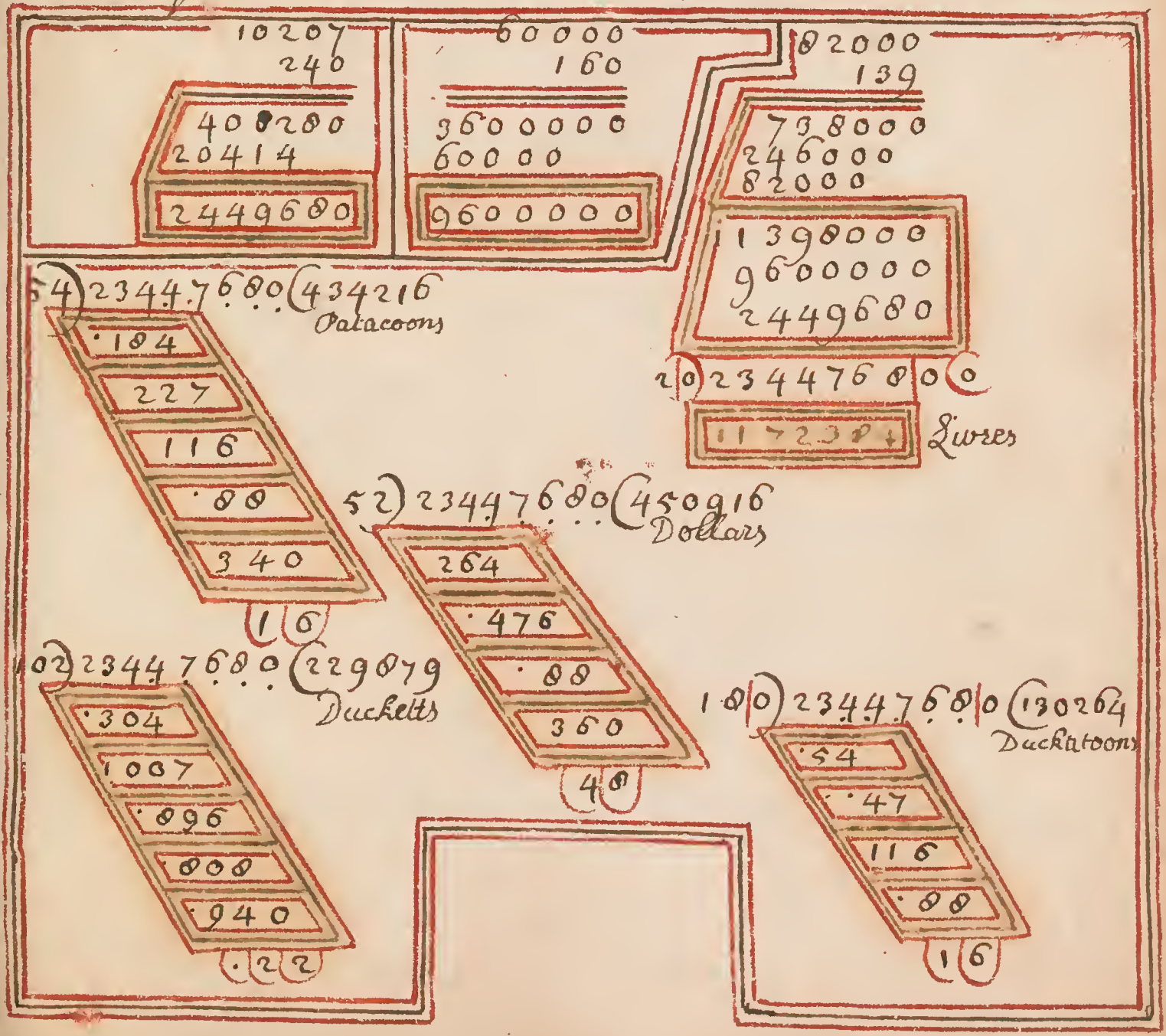
120

278) 18145920 (65276
Pistolotts

1465
759
2032
1860

192

If 10207, & 60000 Marks, & 82000 Pistolets how many Liwres, Patacoons, Dollars, Ducketts, & Ducattons?



Q P

£ 9000 how many Marks, Nobles, Georges, Thirtoon Pence ½ Pennys, Nine Pences, Four Pence ½ Pennys, Three Pences & Two Pences?

£ 9000
480
720000
36000
4320000

27) 4320000 (160000 Thirtoon & ½ D
3
162
2480000
240000
D 4 ½ D
9 D

9000
3
3) 27000 (Nobles
13400 Marks

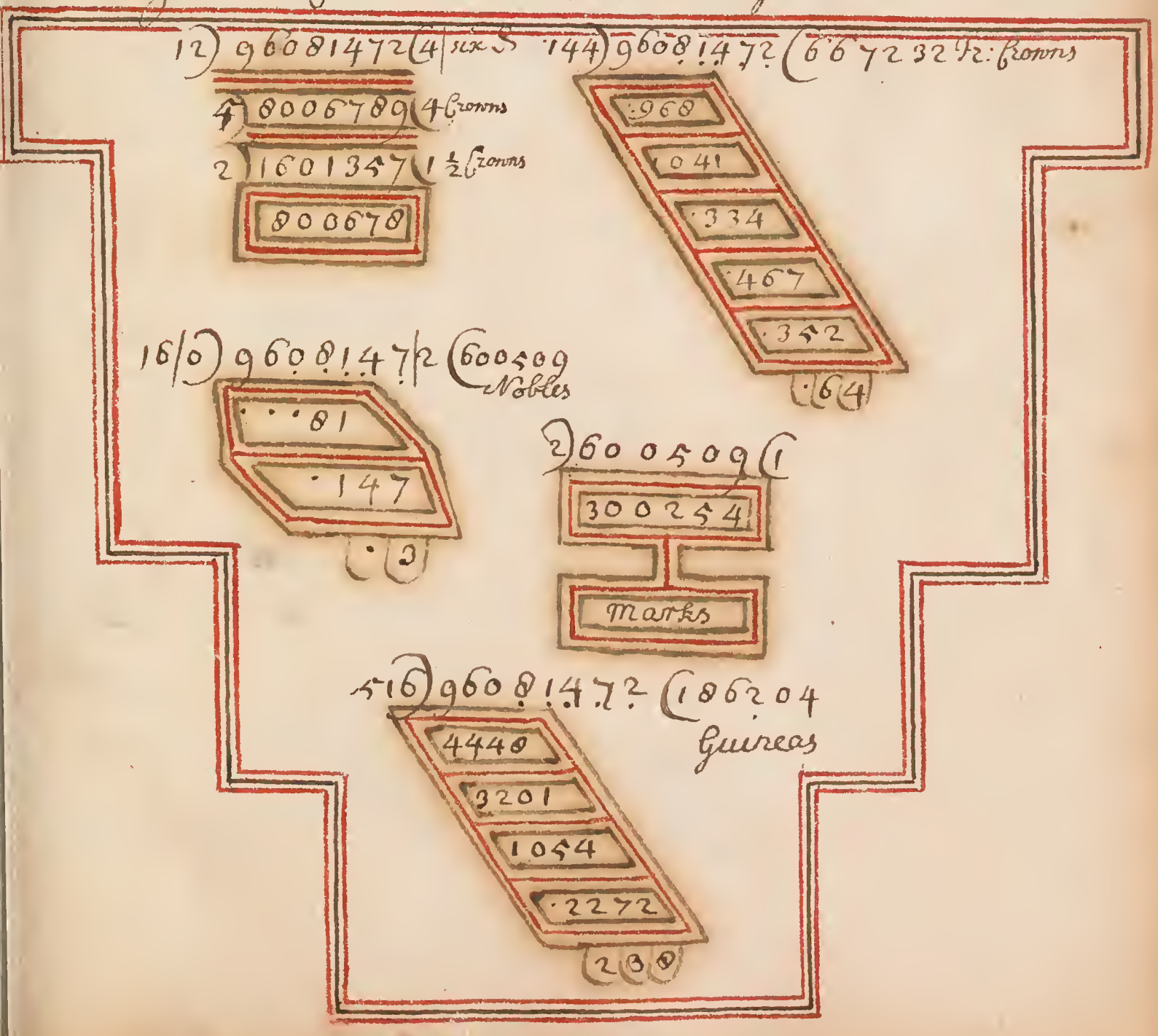
6) 4320000 (0
720000
3 Pennys

60) 4320000 (0
72000
Georges

4) 4320000 (0
1080000
2 Pennys

J N

9608147 2 Half Pence, how many 6 Pences, ½ Crowns, Eng^d & Fr: Crowns, Nobles, Marks & Guineas?



IV £ 3279 how many Pence?

240

131160
6558
786960 Pences

IV £ 4009 how many ½ Pence?

480

320720
16036
1924920 ½ Pence

IV £ 19000 how many Farthings?

960

1140000
171000
182400000 Farthings

£ P

840000 Farthings How many Pounds?

96 | 0 | 8400 | 0 | 875 Pounds

720

480

½ P

182000 Half Pence how many Pounds?

48 | 1820 | 0 | 379 Pounds

380

440

8

P

486000 Pence how many Pounds?

24 | 4860 | 0 | 2025 Pounds

60

440

Note that 24 Grains make 1 Penny wt

20 Penny wts 480 Graihs--	make	1 Ounce

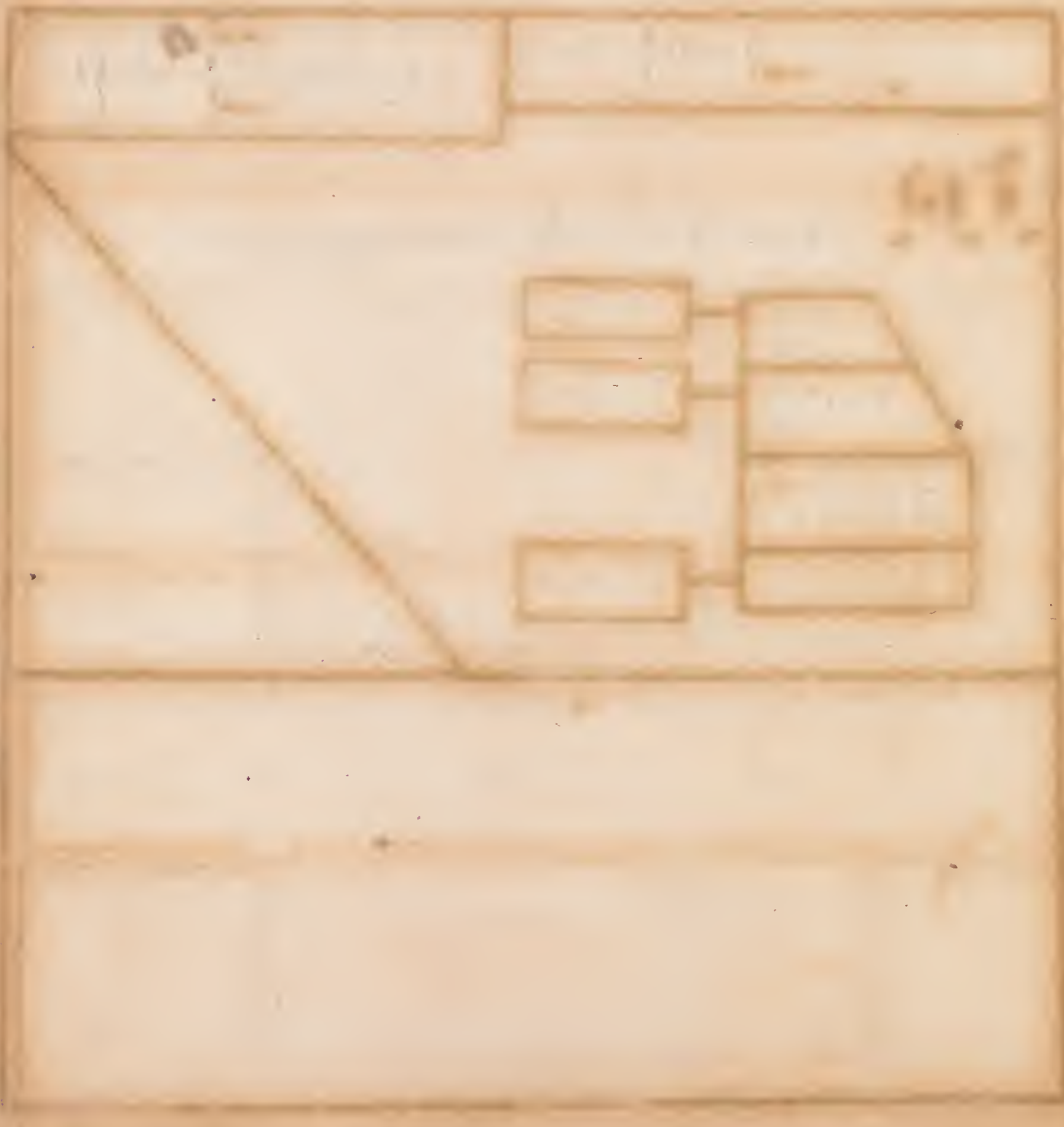
12 Ounces-- 240 Penny wts 5760 Graihs--	make	1 lb

Ex. 1.

lb oz dw gr:
384 = 10 = 13 = 09 how many Grains

12

4610 20	Ounces.
92373 24	Drams
369501 184746	
2216961	Grains



Ex. 304 How many Penny wts?

240

12160
608

72960 — Penny wts

Ex. 482 How many Grains?

5760

28920
3374
2410

2776320 — Grains

Ex. 324101 Grains How many Pounds?

5760) 324101 (56 — Pounds

3610

154

Ex. 9802104 Penny wts How many Pounds?

24) 9802104 (4092 — Pounds

221

40

2

Ex. 1. lb oz
379 & 7800 how many Ounces & Grains?

240

15160		
758		
90960		
7800		
20	98760	0
	4938	oz

98760
24

395040	
197520	
2370240	
Grains	

Ex. 2. Gr oz
461000 & 9700 how many Penny wts & lb?

48	0	461000	960
		390	
		20	

9700
960

10660	
20	
213200	
Penny wts	

12	10660	4
	888	
	Pounds	

A 300700 Grains & 9271 how many Pennyws & Ounces?

5760

556260
64897
46355

5340960
300700

24 | 37.01.660 | 2237569
Penny ws

57
90
181
136
166
220

4

2/0 | 2237569

111078 | 02

IN 02
1f39070 & 1200480 Pennyws how many Grains & C?

2/0 | 1200480 | 0

60024
39070

99094
480

792520
396376

4756120 Grains

Note

16 Drams
16 Ounces
28 Pound
56 ℔
84 ℔

} make

1 Ounce 4 Quarters
1 Pound 16 Pound
1¼ of ℥ 1792 Ounces
28672 Drams
½ ℥
¾ of ℥

} make 1 ℥ ℔

20 ℥ ℔
80 qrs
2240 ℔ ℔
35840 Ounces
573440 Drams

} make one Ton

16 Ounces
256 Drams

} make 1 ℔ ℔

Q. 1

Tons ℥ qrs ℔ oz Dr
307 – 19 – 2/4 – 27 – 13 – 12 how many Drams?
20

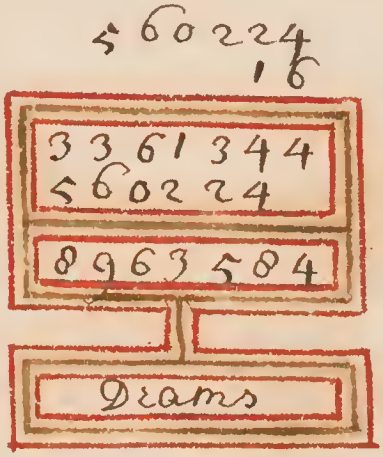
609919
16

6159 / 4	
24639	Quarters
28	
197119	
49200	
609919	
Pounds	

4139517	
6899200	
11038717	Ounces
16	
662323204	
176619404	
Drams	

No. 1

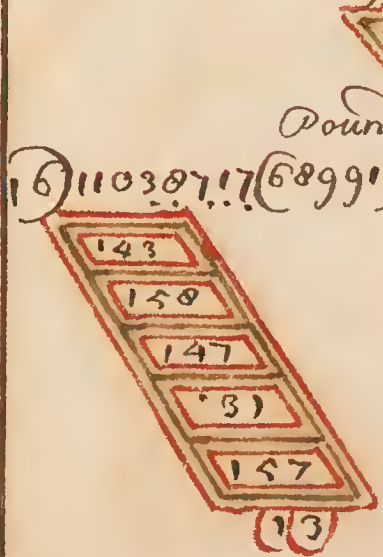
$312\frac{1}{2}$ ℔ − 14 ℔ how many Ounces & Drams?

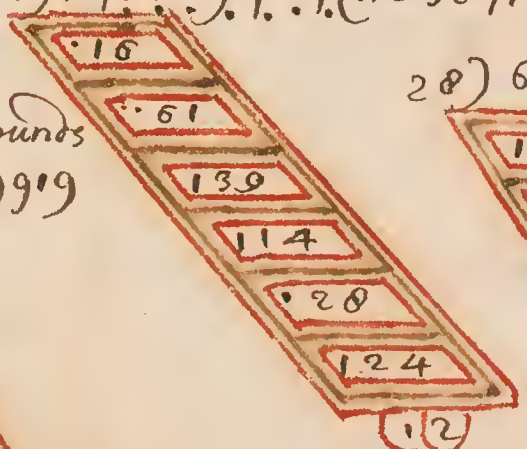


No. 2

Drams
17661948 how many Ounces, ℔, qrs, Ø, & Tons?

16) 17661948 (1103071 Ounces

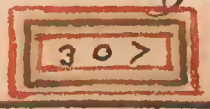




28) 68919 (2463 9
quarters

4) 24639 (3

20 6159 (19 hundreds



Tonns Drams
370 & 9270098 how many ℔, qrs, ℔, & ounces?

573440
370

40140800
1720320

21217.2000
9271098

16 | 221.443.9.8 | 13840243 Ounces

16 | 1384.2.4.3 | 865015 Pounds

104
80
24
83
3

28 | 865.01.5 | 30893 qrs

250
261
95
11

4 | 30893 | 7723

1 8

℔

IN ℔ 7723 1/4 - 17 how many Tonns & Ounces?

4

30893
28

247158
61789

8650428

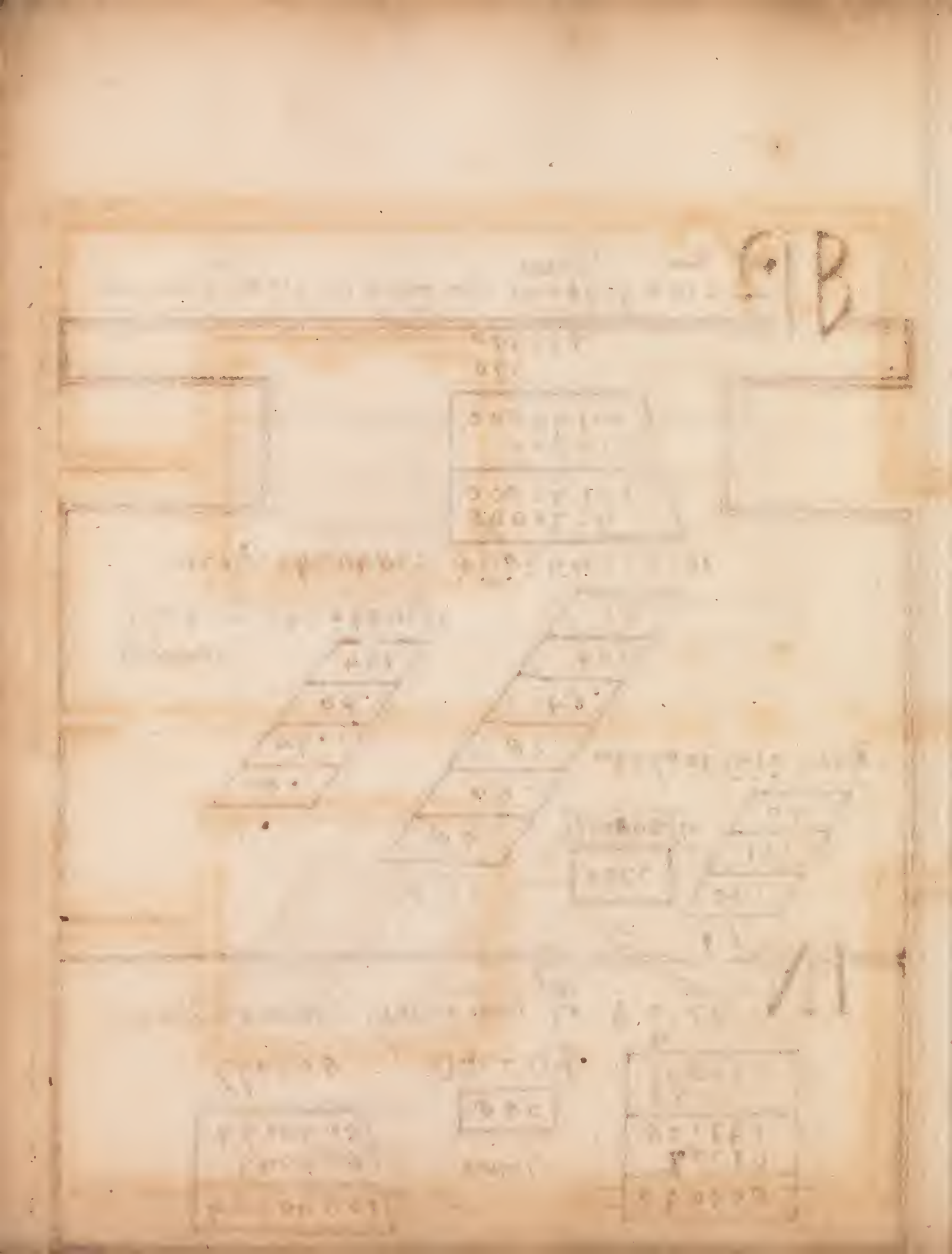
20 | 7723 | 386

Tonns

865049
16

5190294
8650049

13840784



Ex. 1

378 ½ @ 14 Gross Tare 7 p ℔ w Nett 4 qr 104 How many ℔ w neat?

```
   378 - ½ - 14
     4
  -------
   1514
     28
  -------
  12116
   3029
  -------
  42406 --- 02
  - 2650 --- 06
  -------
  39755 --- 10
   1529 --- 00
  -------
  38226 --- 10
```

Gross
Tare
Subtle
Tret
Neat

```
   378 - ½ - 14
     7
  -------
   2646
      3 - 06
      0 - 14
  -------
   2650 - 06
```

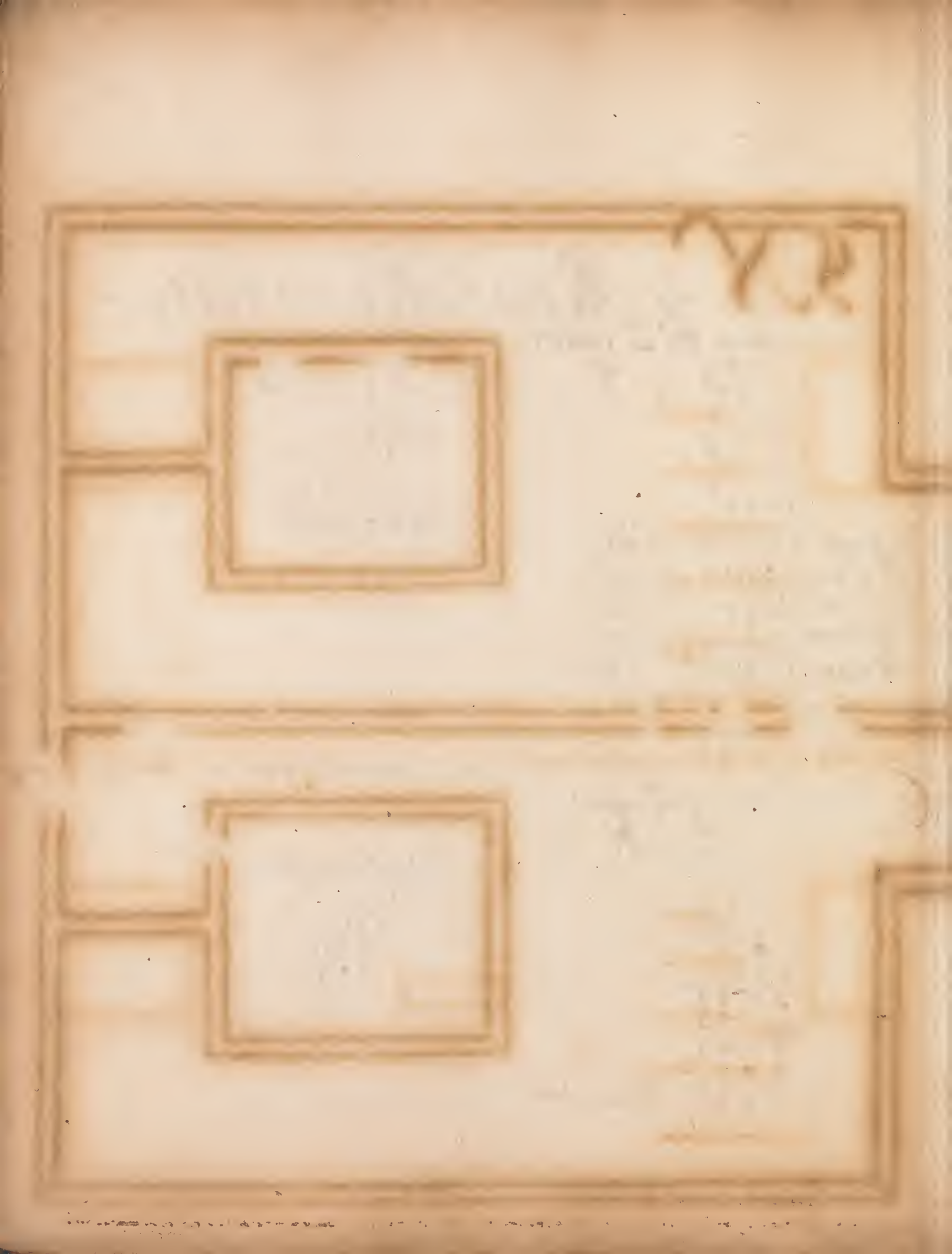
Ex. 2

13 Piggs of Lead each weighing 27 - ½ 21 How many weights of 14 each?

```
   27 ½ 21
     4
  -------
    110
     28
  -------
     081
    222
  -------
   3101
     13
  -------
   9303
  3101
  -------
  40313
```

℔ in whole

```
  14 ) 40313 ( 2879  14 lbs
       123
       111
       ---
       133
       126
       ---
         7
```



11

3 baggs of Rops each ℔ 19 ½ 21. Gross Tret 4 ℔ 104, Tare 17 ℔ ℘ Bagg. How many ℔ neat?

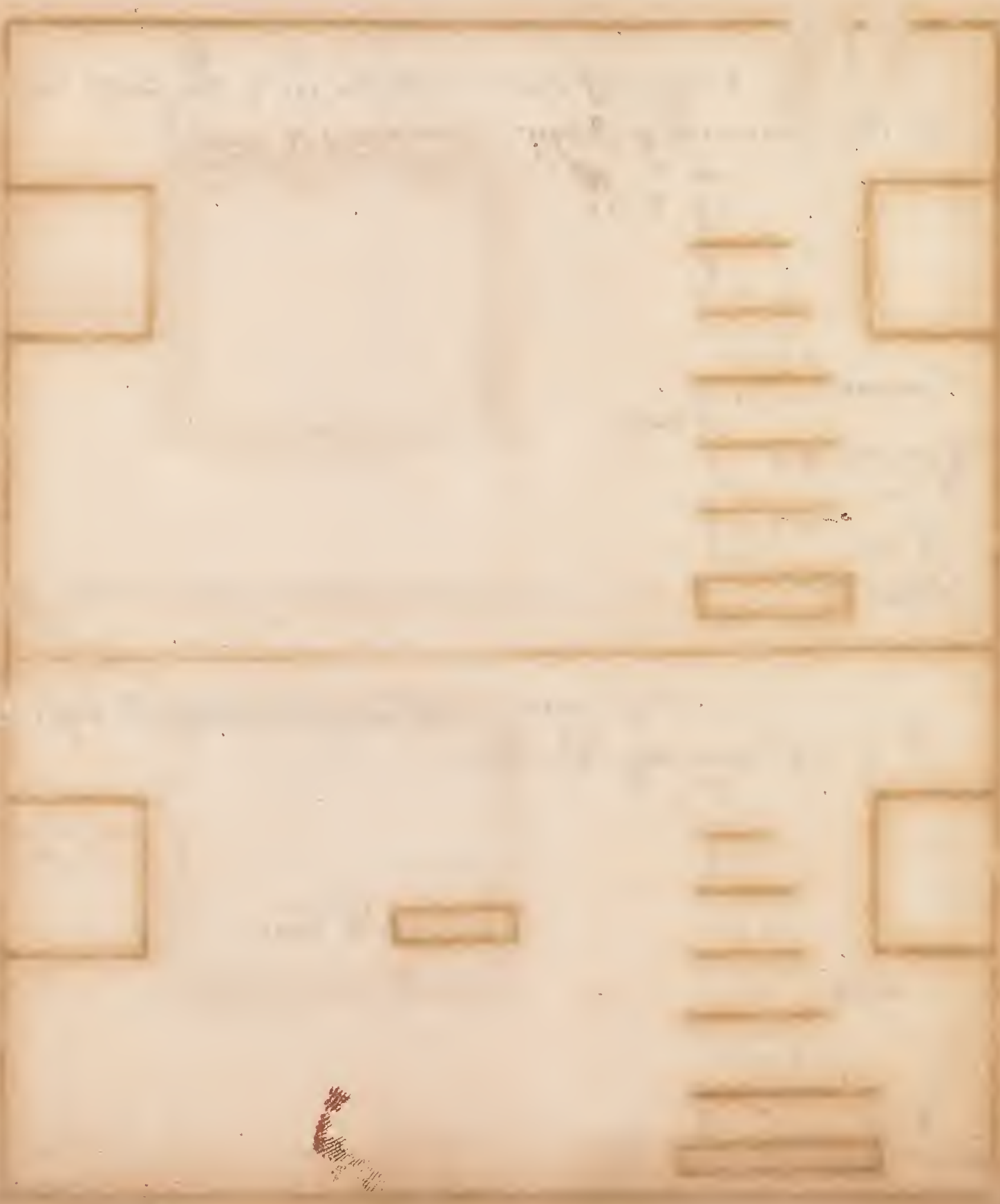
19 ½ 21
4
76
28
625
158
Gross in Bg 2205
3 baggs
Gross in all 6615
℔ Tret 254
6361
℔ Tare ---51
℔ Neat 3310

12

342 Hhd of Tobacco each weighing 34 ¾ 17 Gross, Tare 12 ℘ hogd How may ℔ Neat?

34 ¾ 17
4
139
28
1119
279
Hogd 8909
7 342
7818
15636
11727
℔ Tare 1336078
4184
℔ neat 1332774

342
12
4104 ℔ Tare



9 N 27 Hds of Sugar each ℔ 33 ¼ 19 Grofs, Tare 17 ℔ Hd Nett 4 ℔ 104 how many Ounces neat?

33 - 1/4 - 19

133
28
1073
267
3743
27
26201
7406
Grofs 101061
Tare ---4 59
Nubble 100602
Nett --3869
096733

096733
16
580398
96733
1547728
02: neat

27
19
189
27
459 Tare

26)100602(3869 Nett
226
180
242
0

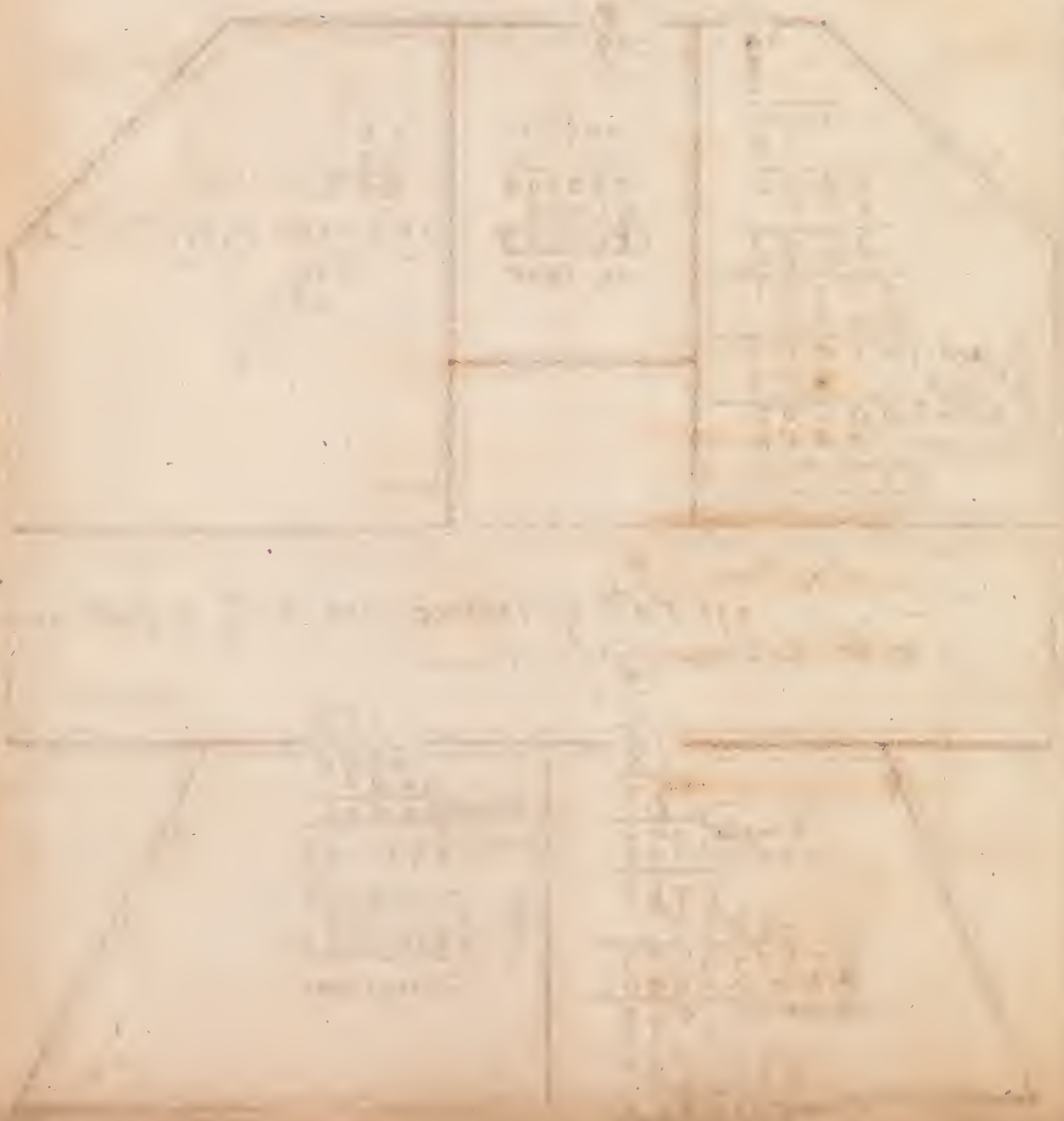
F 976 Hds of Tobbaco each ℔ 4 ½ Grofs, Tare 56 ℔ Hd how many Drams neat?

4 ½
4
18
28
144
26
In 1 Hd 404
12 of 976 Hds 976
2424
2828
3636
Nett 394304
Tare 4646
Grofs 339648
16
2097888
339648
Drams 5434368

976
56
5856
4880
Tare 54656

5434368
16
32606208
5434368
86949888

Drams neat



IN 799 Butts of Currants each w: 2 q 10 ½ Gross, Tare
14 ℔ ⊖ w, Gross 4 ℔ ⊖ 104, how many Ounces & Tonns neat?

⊖ ½

qu^rs 10
4

Cwings 42
28

336
84

℔ in Butt 176
No. of Butts 799.

1058 4
1058 4
0232

℔ Total 939624
℔ Tare 111186

℔ suble 928438
℔ Gross 2 — — 30

928408
16

5570448
928408

Ounces neat 4854528

224 ⓪ 928408 ⑧ 4144 Tonns
324
1000
104

799
14

3196
799
11186

20 ⑦99. ㉚ ℔ neat
19

322

Tonns 796 ½ Gross ℔ Tare 13 ℔ ℔ ℔, Tret ℔ 4 ℔ 104

How many Pounds & Ounces Neat?

796 - ½

℔ in 1 Tonn - 20

℔ in all 15930

qrs ℔ ℔ 4

qrs in all 63720

℔ in qrs 28

509760

127440

Total ℔ 1784160

℔ Tare 207090

℔ subtle 1577070

℔ tret 60646

℔ neat 1516414

16

9098484

1516414

24262624

Ounces Neat

15930

13

47790

15930

207090

Pound Tare

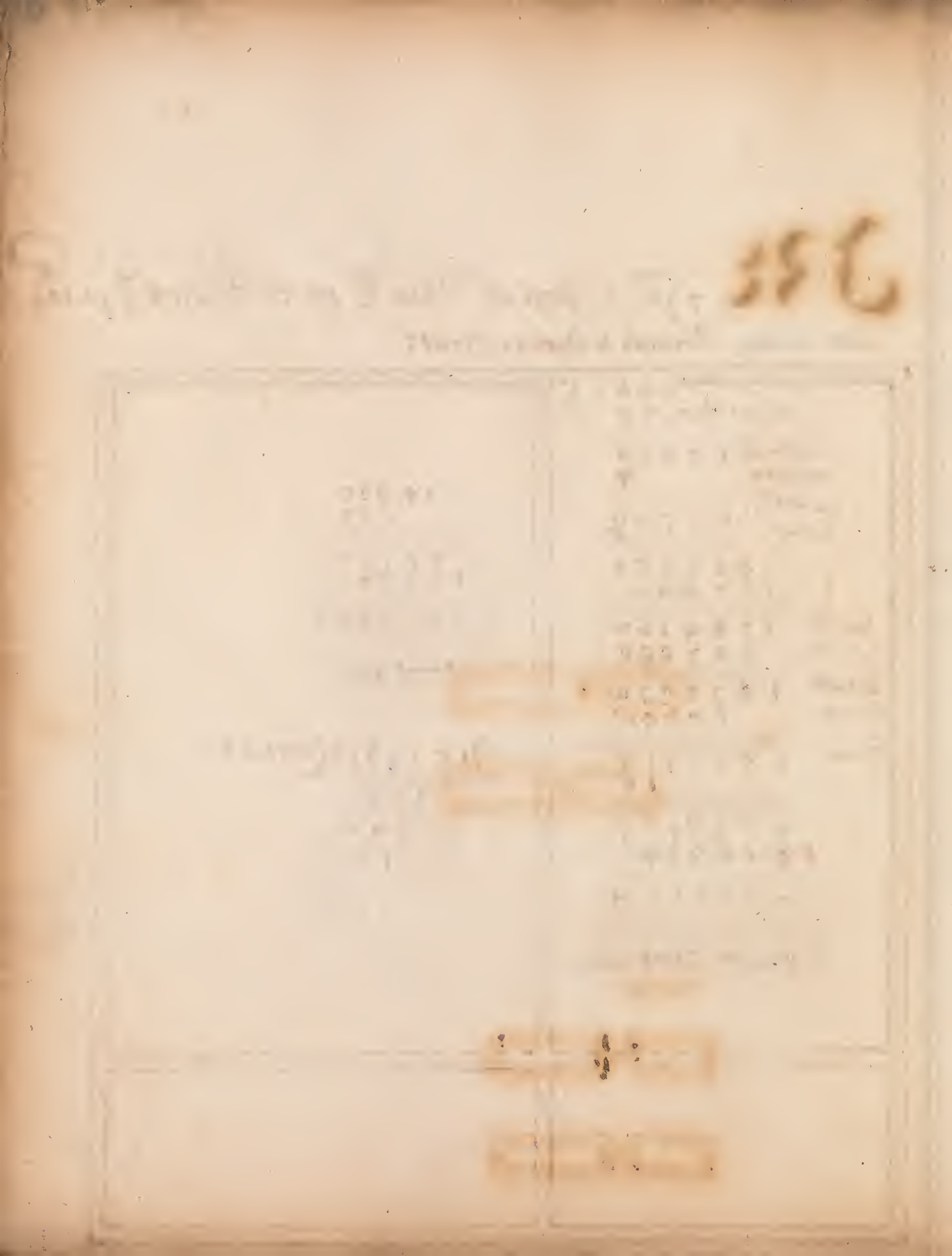
26) 1577070 (60646

170

147

170

14



Note that 4 Nails make 1 qu^{r} of a Yard.

3 Qrs 4 Qrs 5 Qrs	or	12 Nails 16 Nails 20 Nails	make	1 Flemish or Dutch Ell 1 Yard 1 Ell English

Rule

327 Dutch Ells how many Qrs & Yards?

3

981	Quarters

4) 981 (1

245	Yards

247 Yards how many English & Dutch Ells?

4

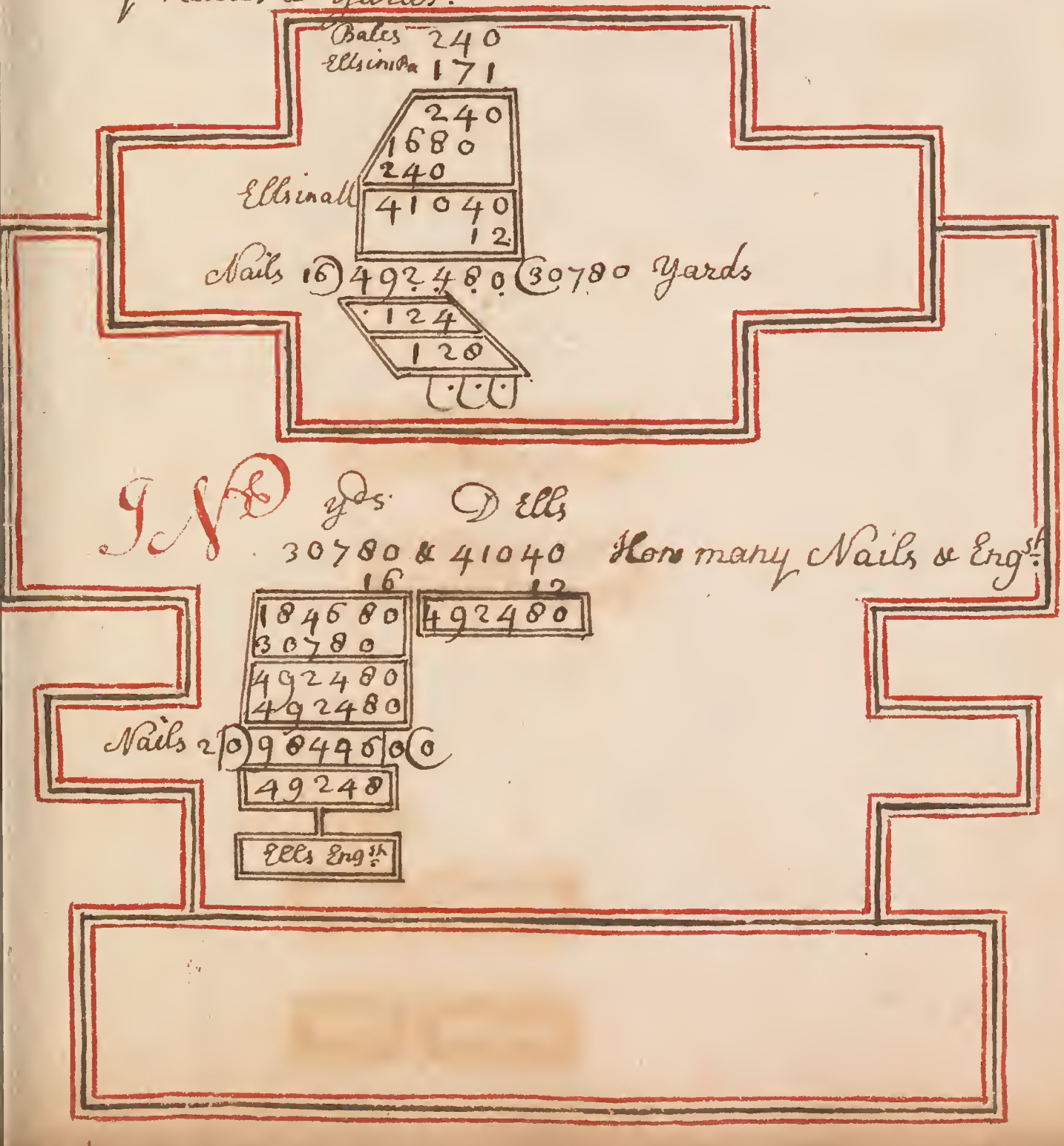
5) 988 (3

197	Ells Eng^{h}

3) 988 (

329	Duch Ells

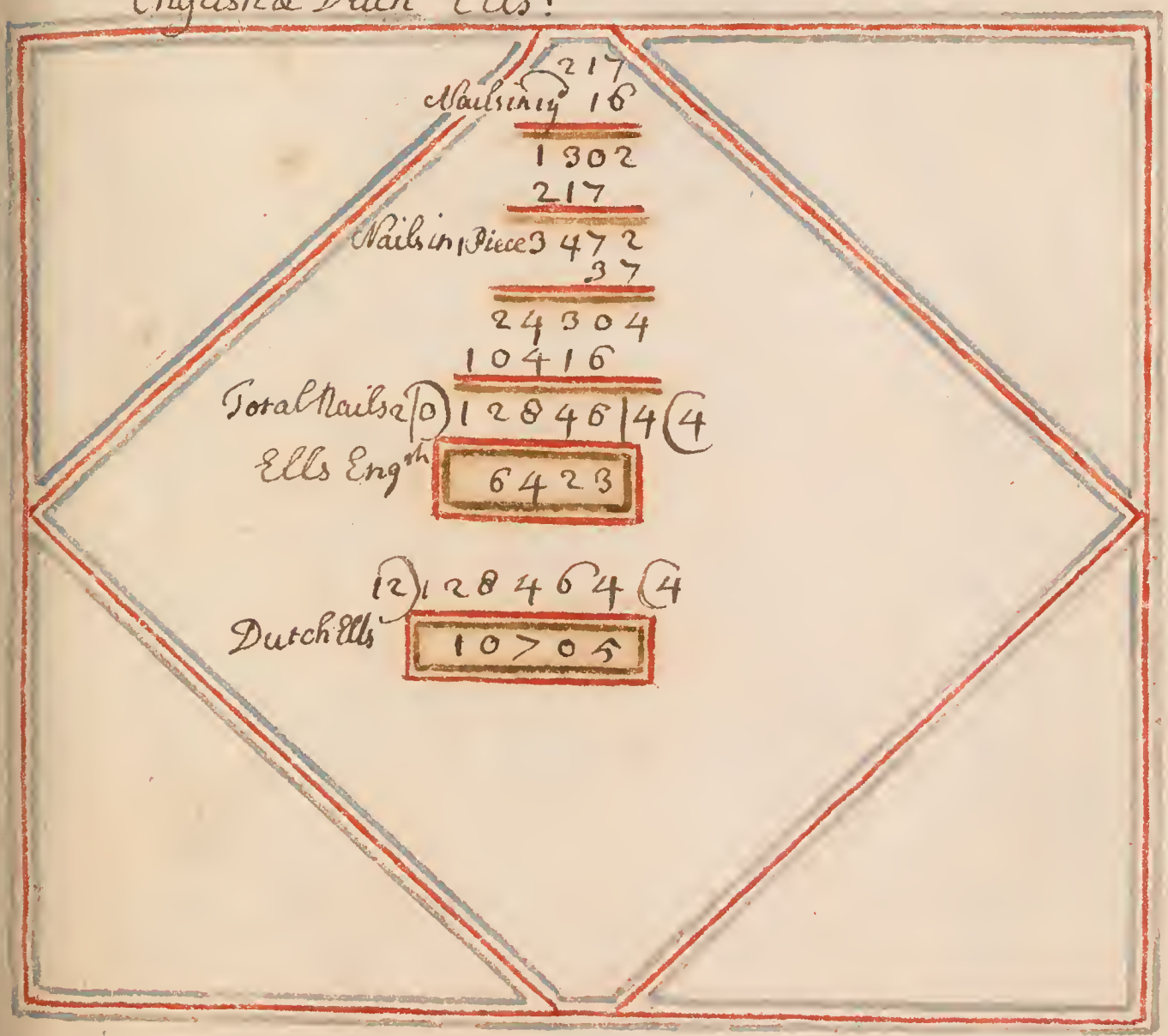
If 240 Bales of Holland each qr. 171 Ells. how many Nailes & Yards?



If 30780 yds & 41040 Ells How many Nails & Engl. Ells?

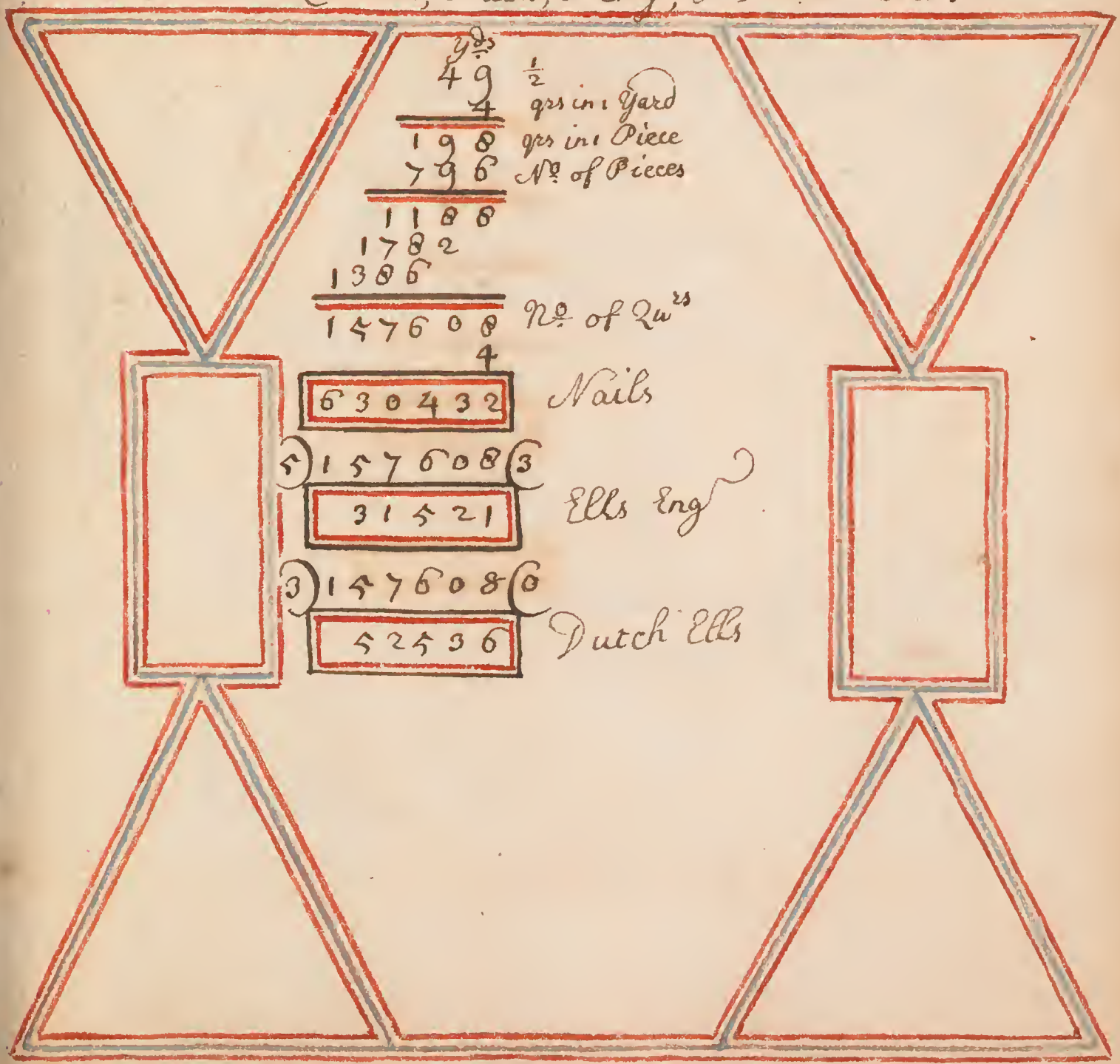
371

37 Pcs of Muslin each qt. 217 Yards, how many English & Duch Ells?



96

796 Pieces of Cambrick each qt. 49 ½ yds how many Quarters, Nails, & Eng, & Dutch Ells?



317 Lasts how many Chalders?

317
84 Bus. in 1 Last

1260
2536

26620 Bushels

Bus in 1 Ch.

32) 26620 (832 Chalders

102

68

4

312 Chalders, how many 2 3/5 Bs, Pecks, & Pints?

4

1248
8

9984
4

39936
16

2396160
39936

3389760

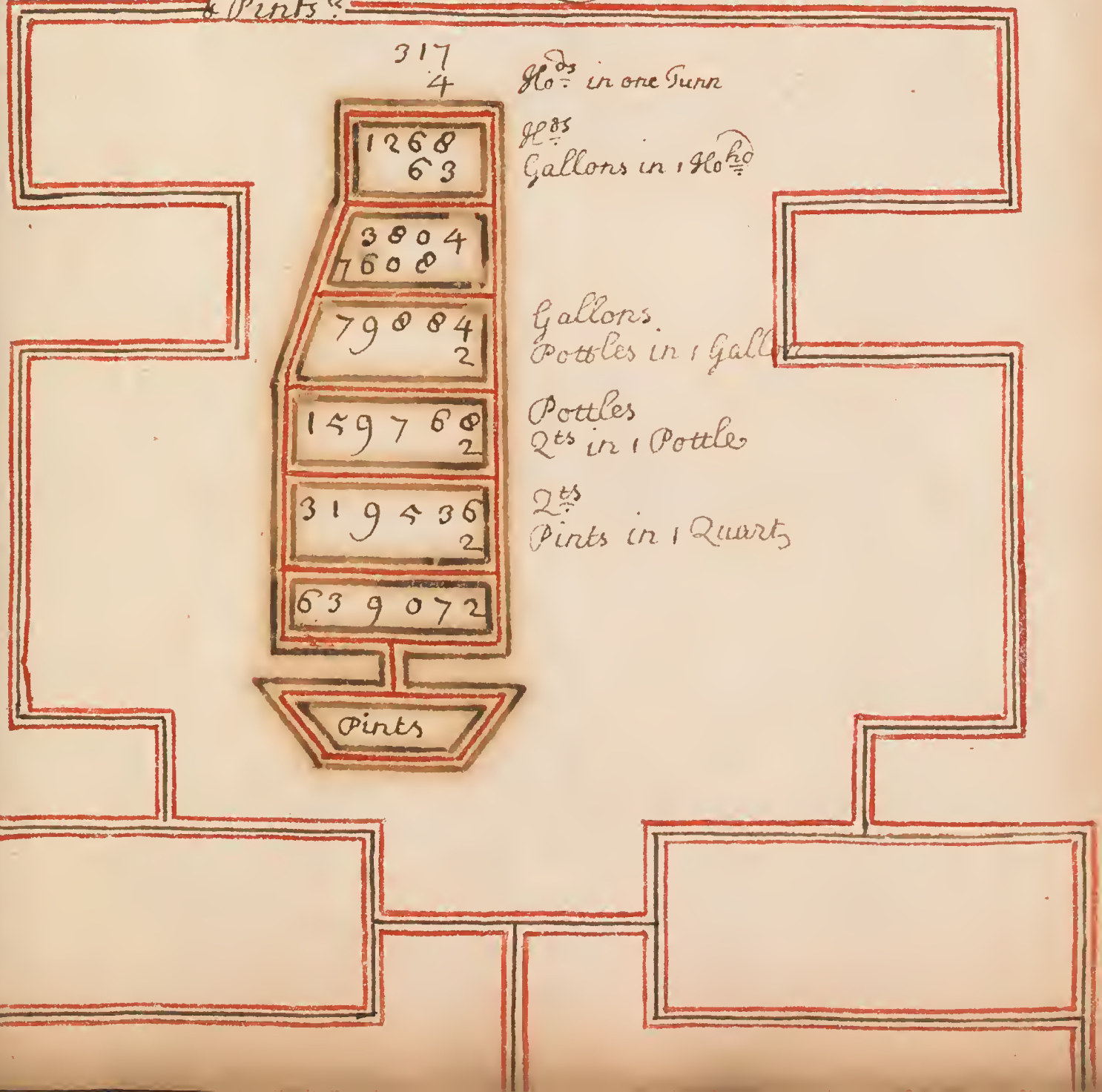
2es

Bus.

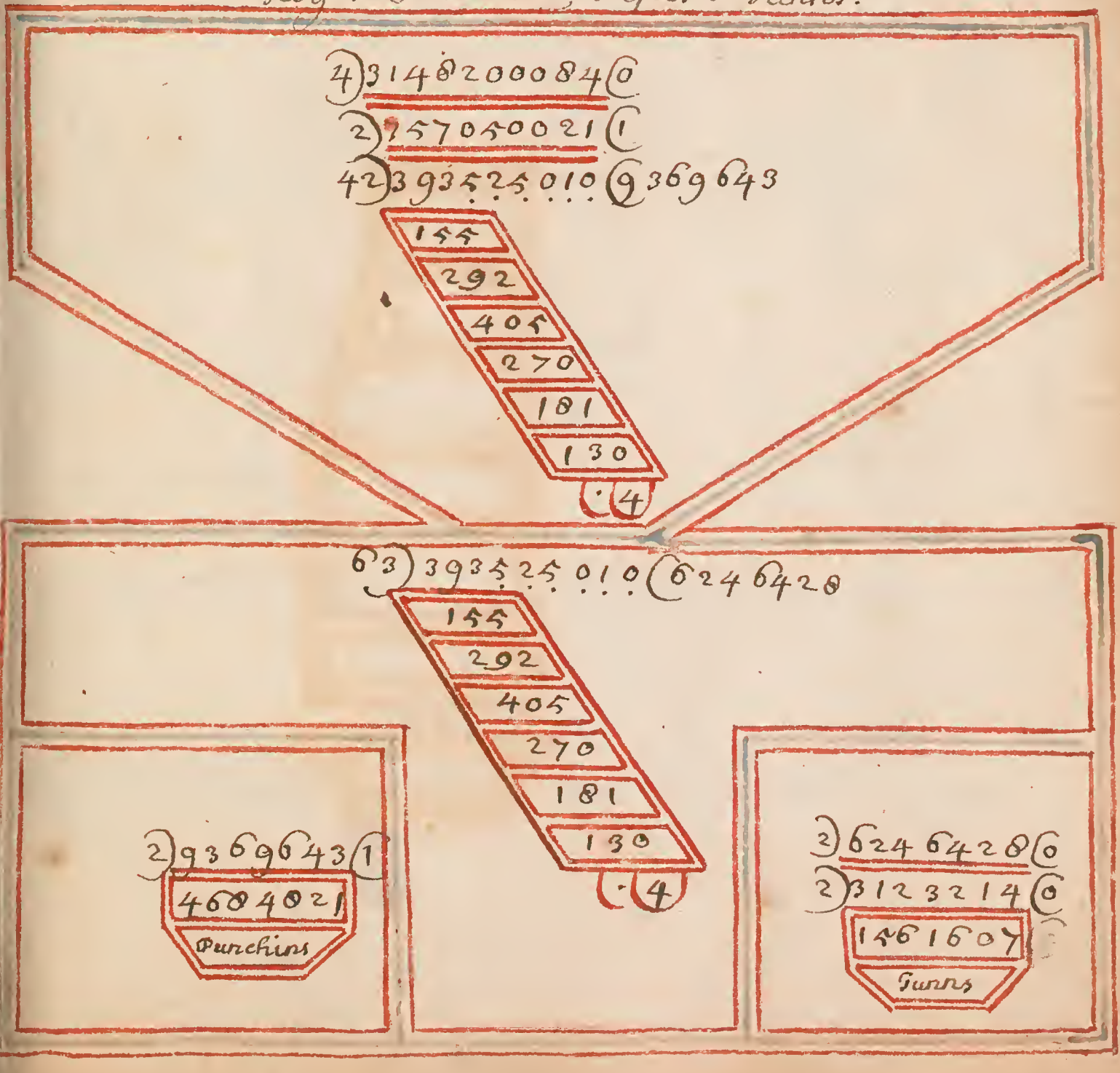
Pecks

Pints

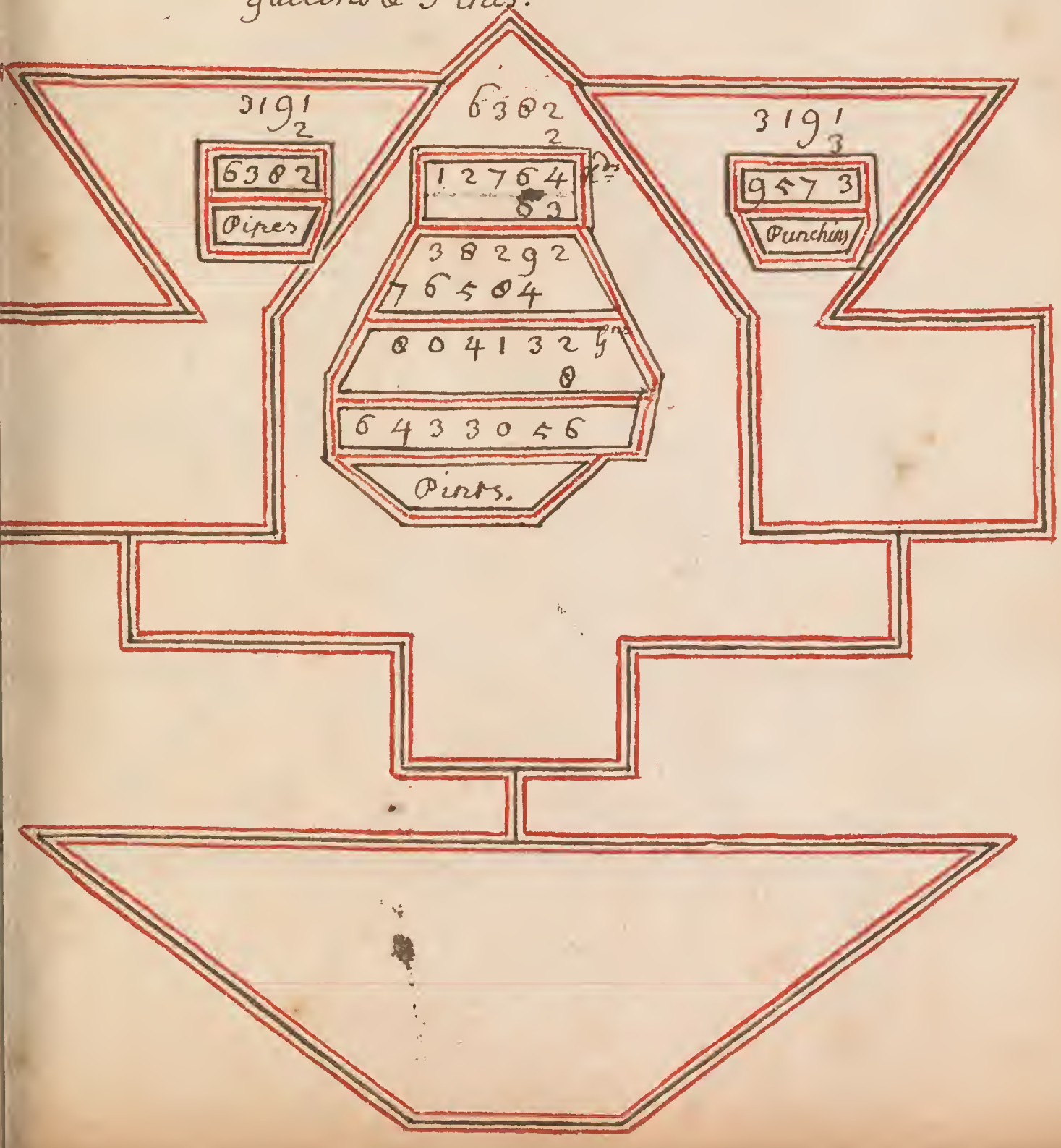
317 Tunns of Wine, how many Hoh^ds, Gallons, Pottles, Quarts & Pints?



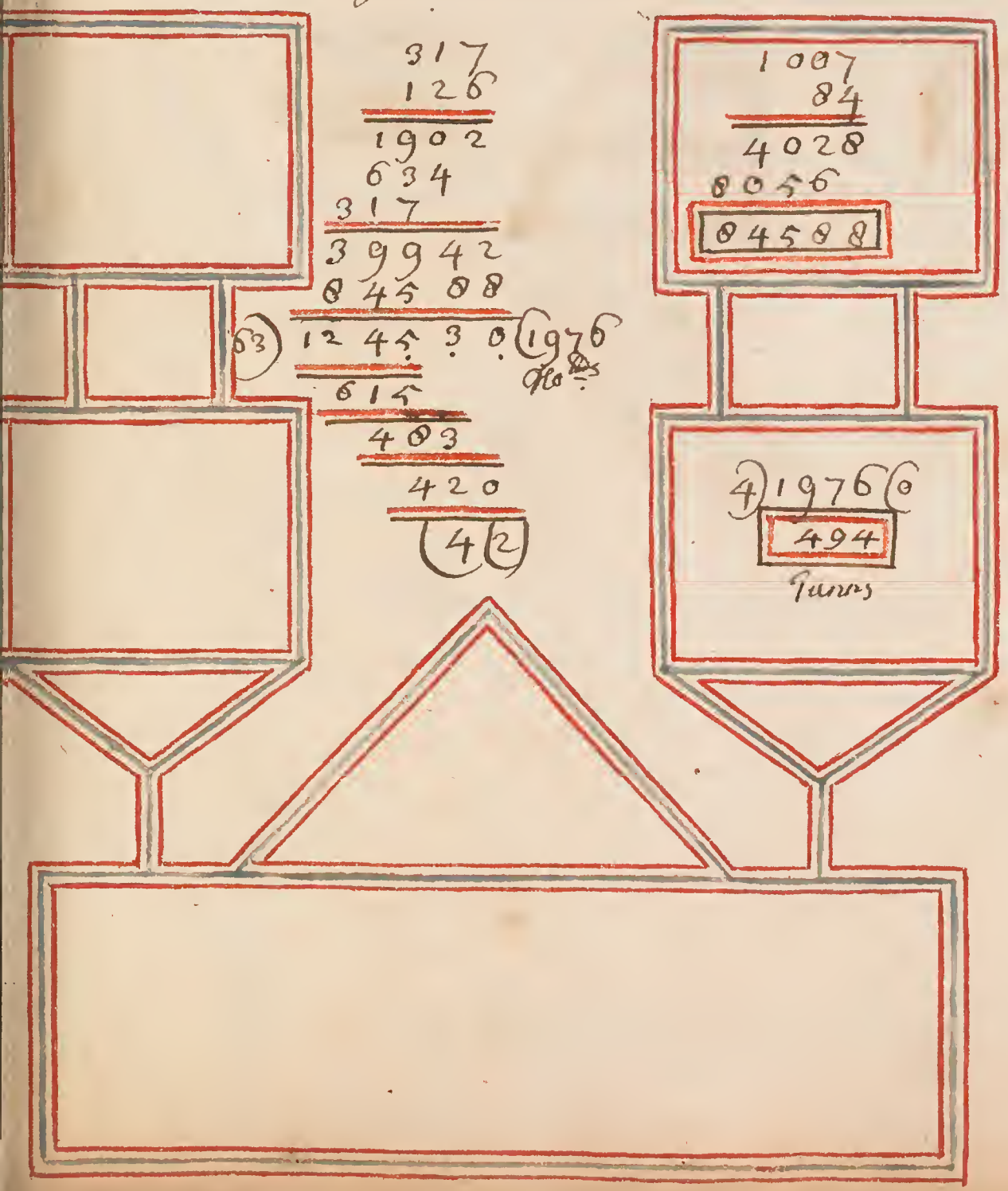
Pints
3148200084 how many Pottles, Gallons, Tierces,
Hog^hds Punchins, Pipes & Tunns?



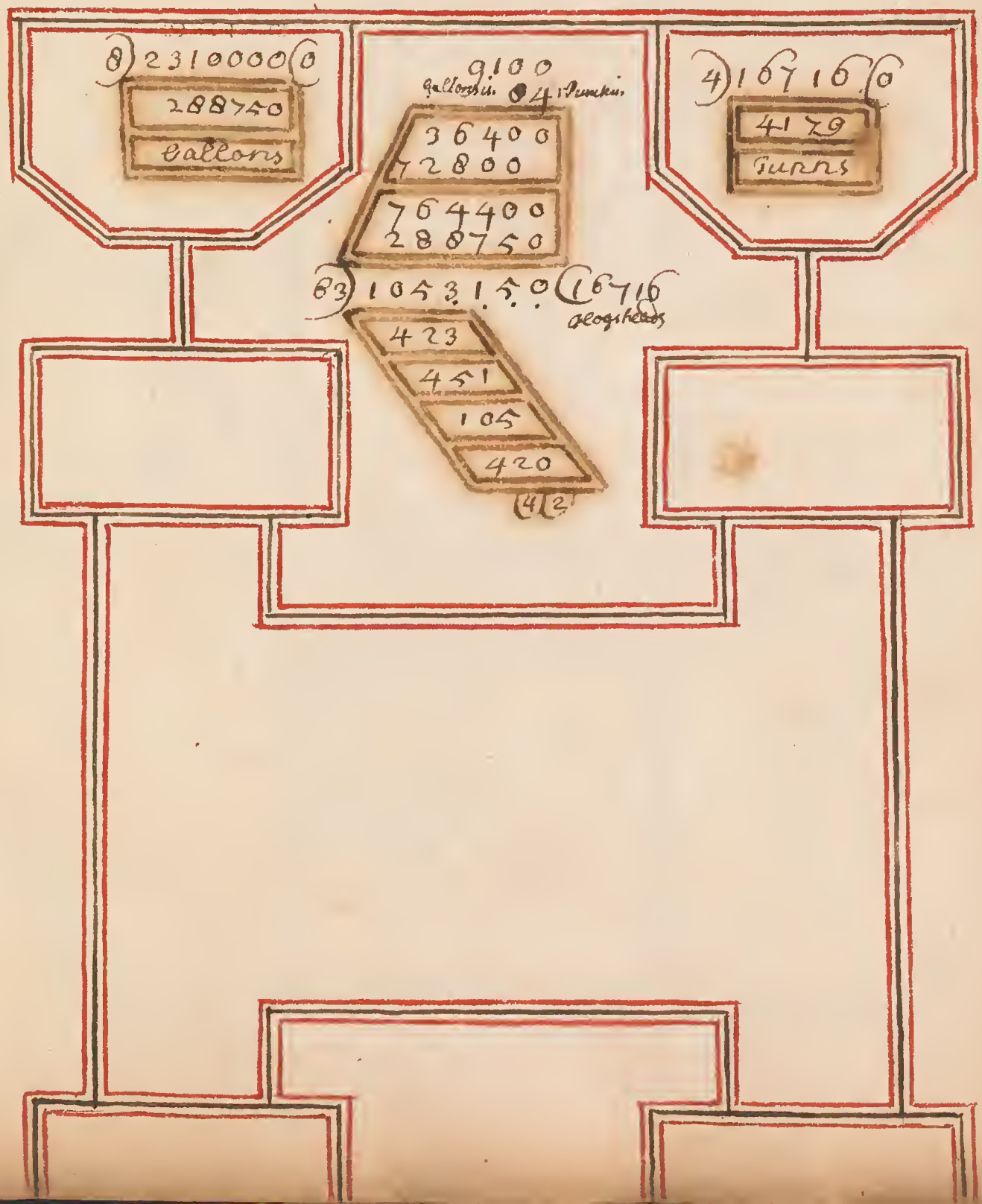
3191 Tunns how many Pipes, Punchins, Hogsheads, Gallons & Pints?



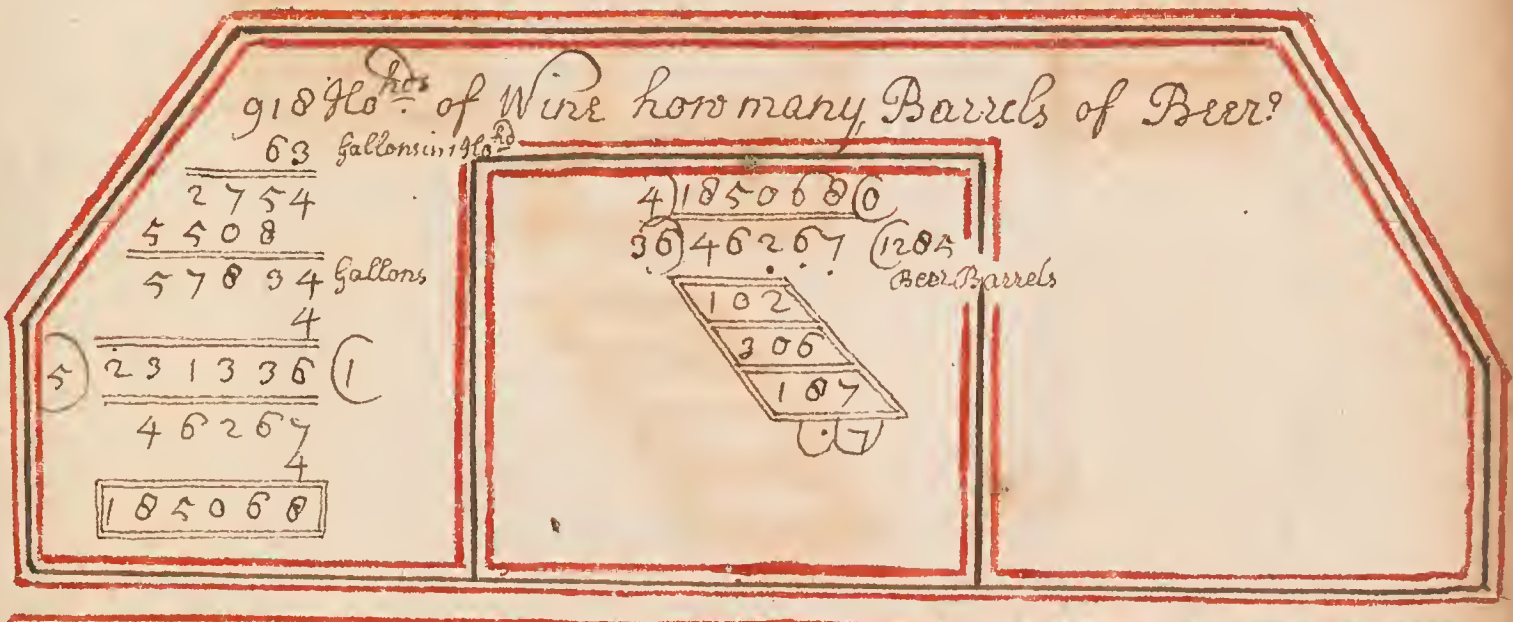
317 Pipes & 1007 Punchins how many Gallons, Hogsheads & Tunns?

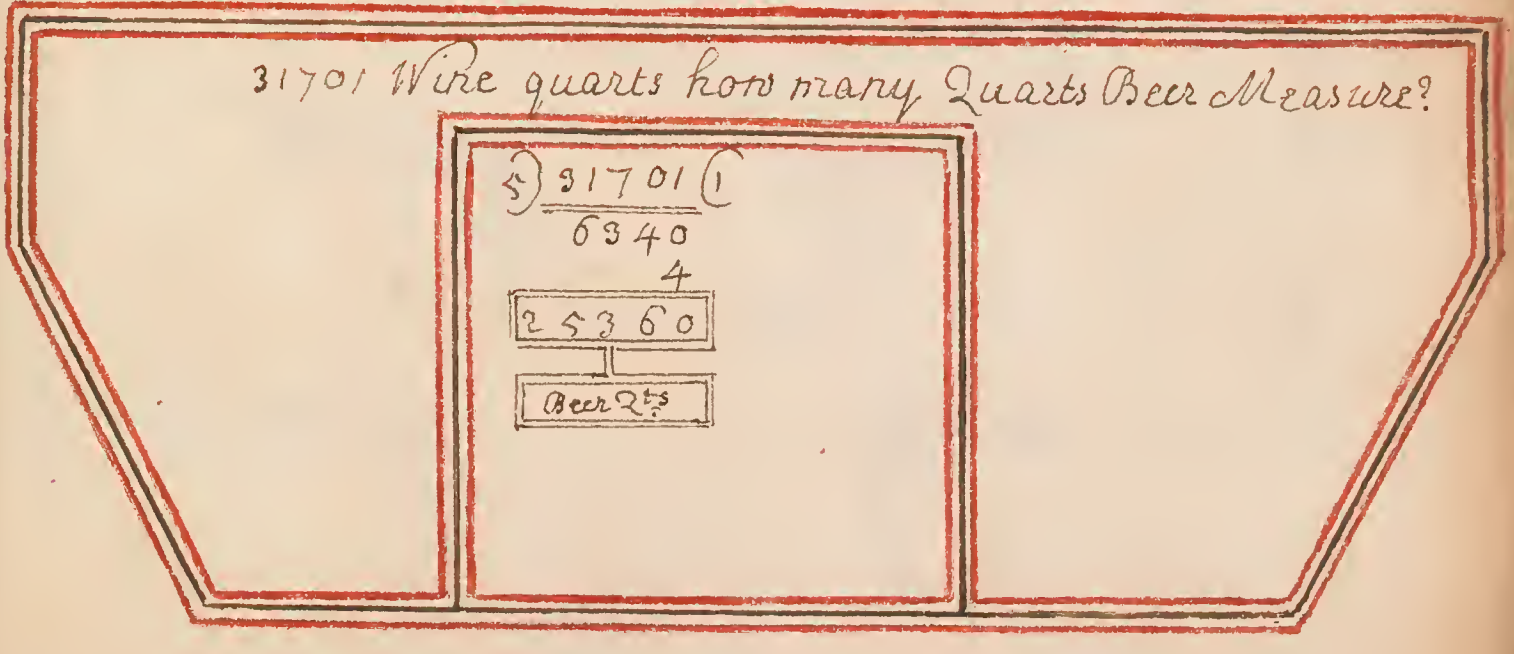


2310000 Pints & 9100 Punchins how many Gallons, Hds & Tunns?

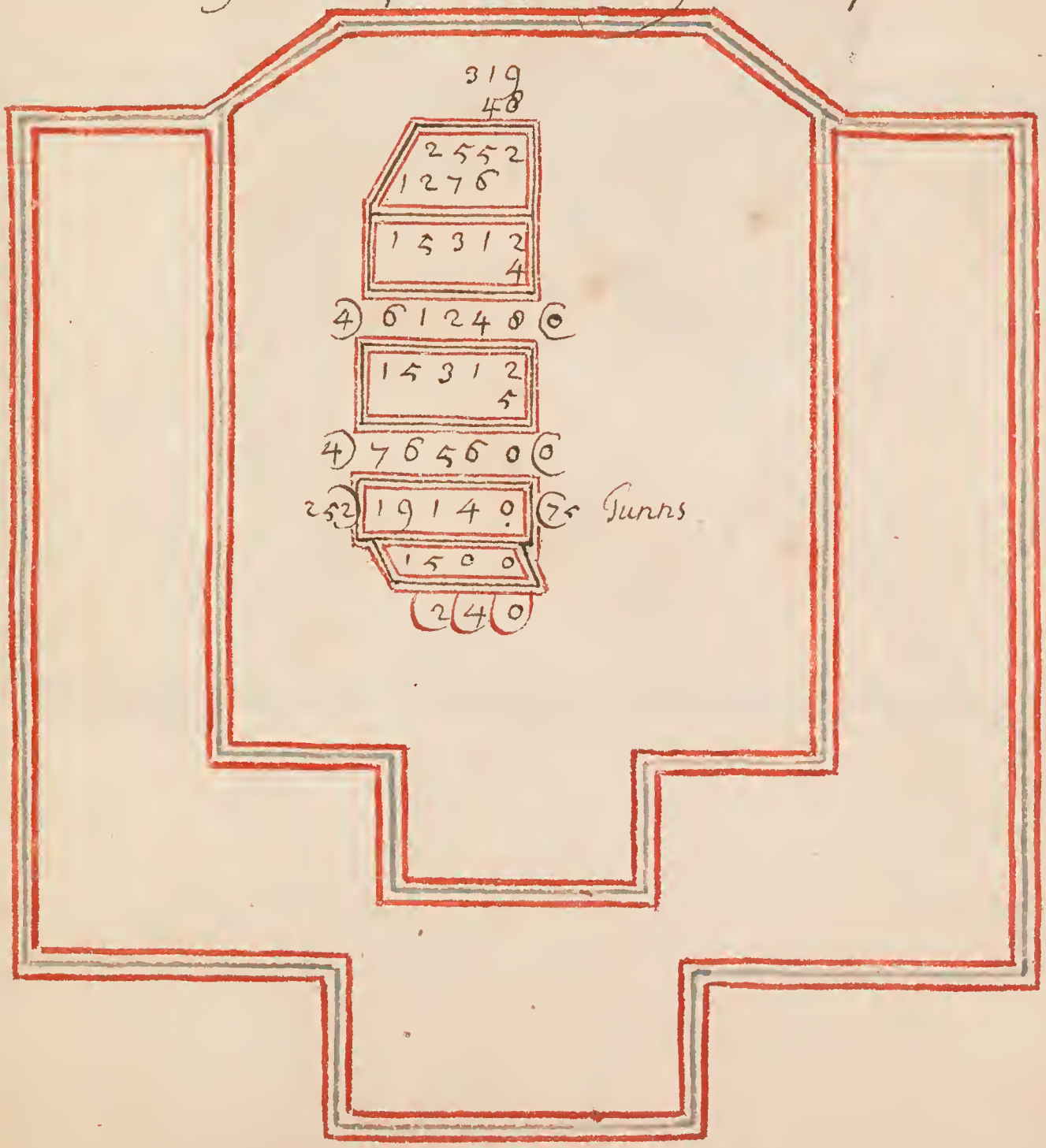


The Rule in Reduction of Wine Measure to Ale & Beer Measure is, that you must Take Notice, that 4 Beer or Ale Quarts, are equal in Measure to 5 Quarts Wine Measure.

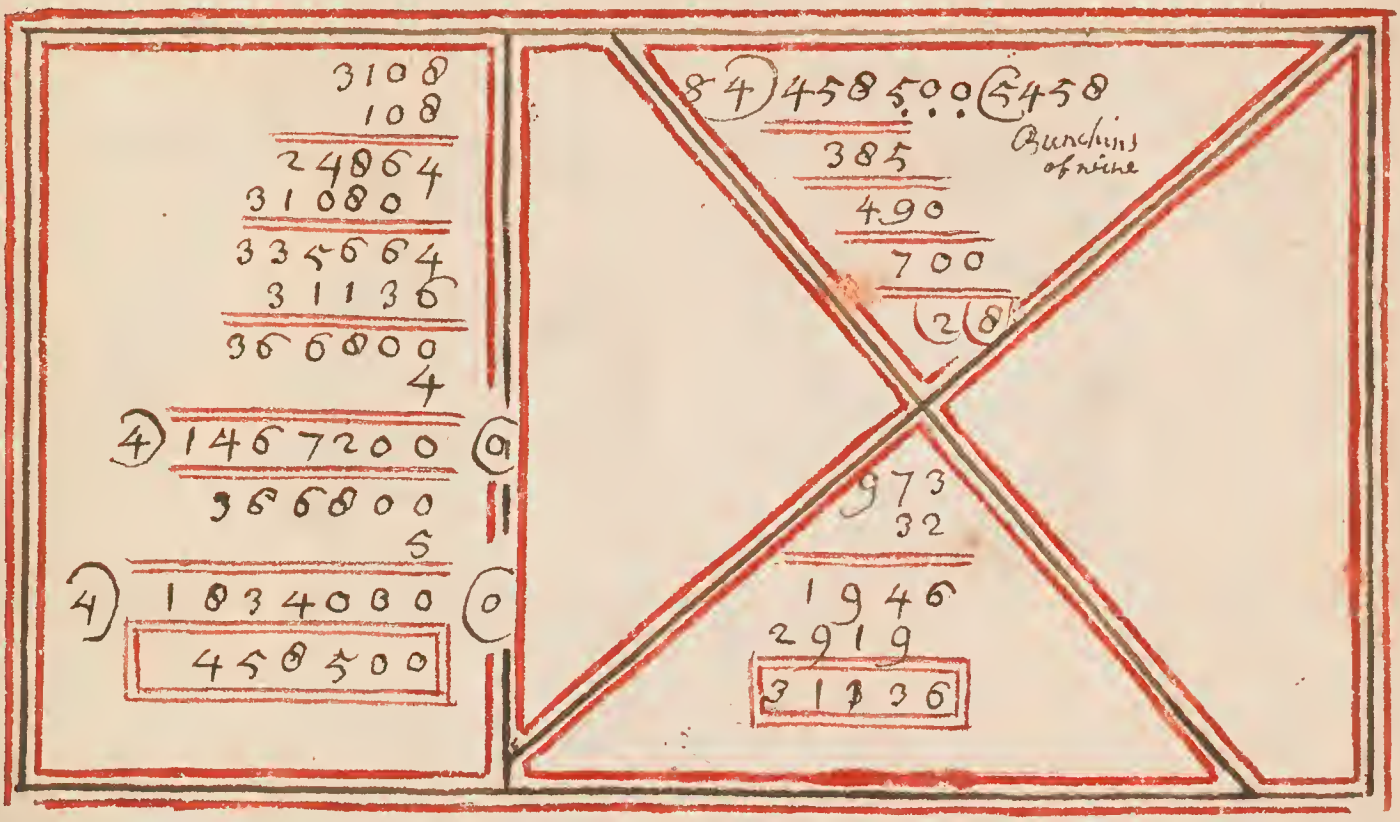




319 Hoghds of Ale How many Tunns of Whine?

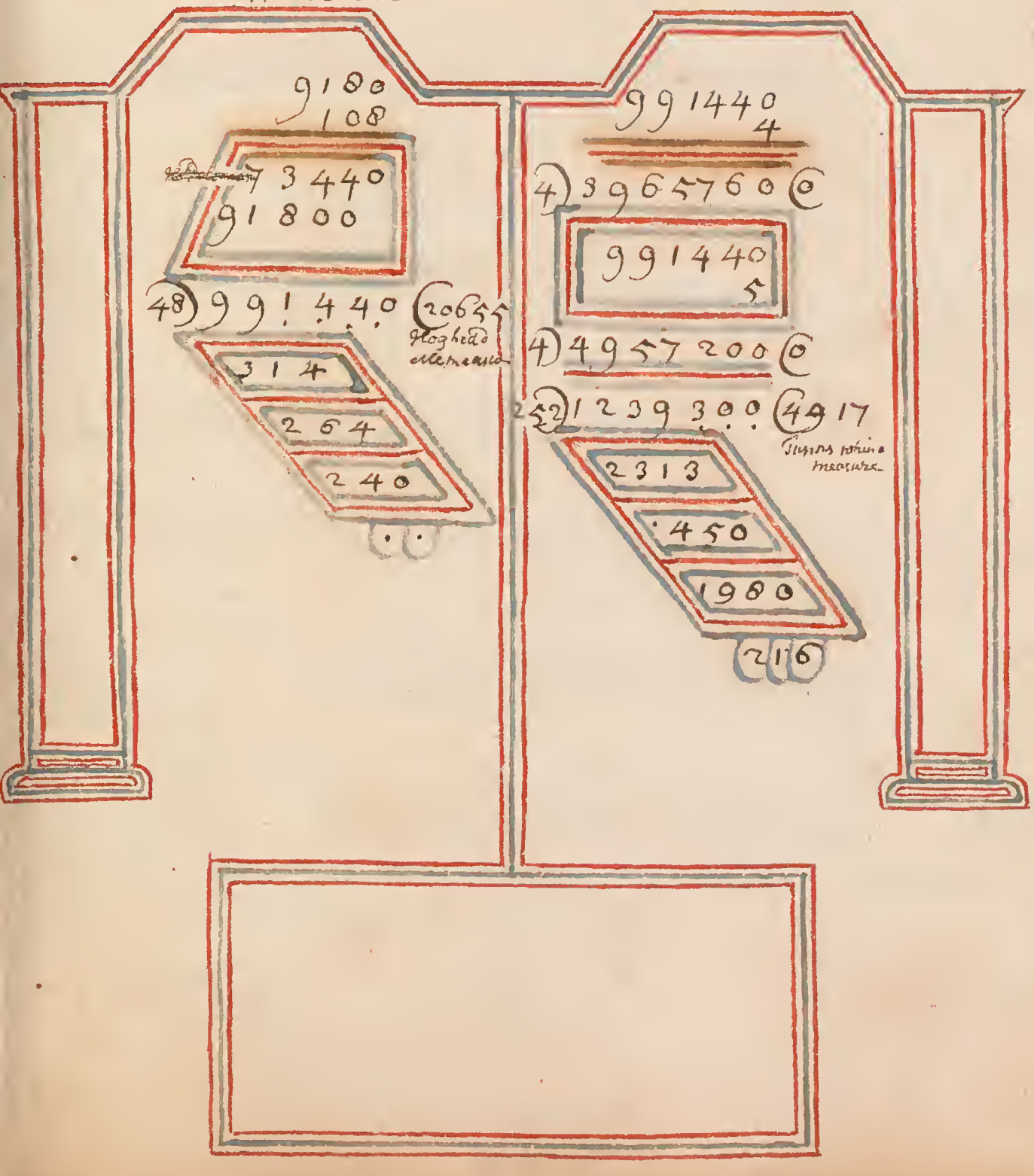


3108 Butts of Beer & 973 Barrels of Ale how many
Punchins of Wine?



720 Pipes of Wine & 4218 Barrels of Ale how many Beer Butts?

9180 Beer Butts how many Hogs. Ale Measure & Gunns Wine Measure?



That 8 Furlongs
320 Poles
1056 Geometrical Paces.
1760 Yards
5280 Feet
63360 Inches
190080 Barly Corns

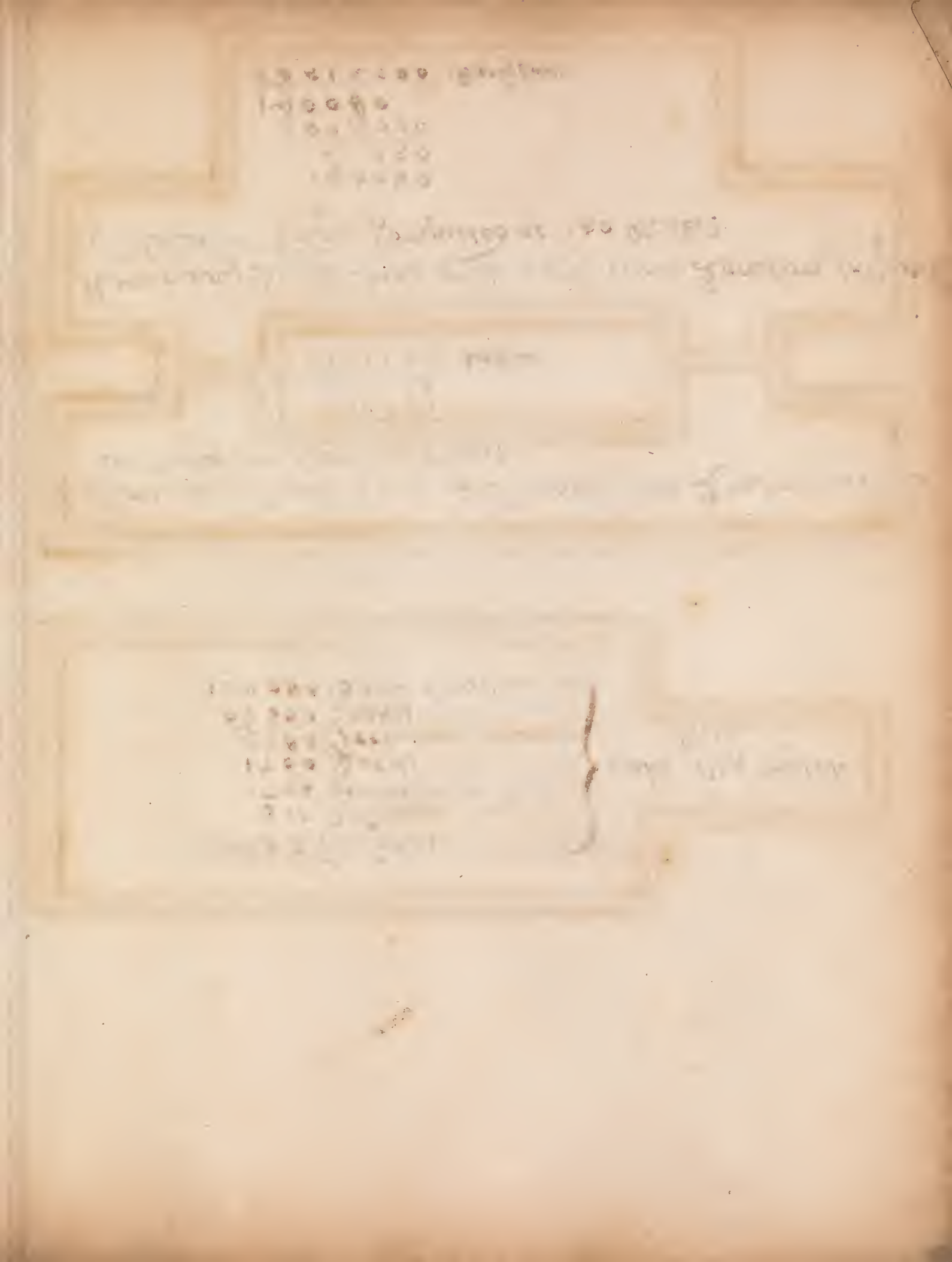
} make One English Mile.

How many Barly Corns will reach from London to Ware it Being computed 20 Miles?

190080
20
3801600 Barly Corns

How many Barly Corns will reach from London to York ye Distance Being Computed at 150 Miles?

190080
150
9504000
190080
20412000 Barly Corns



آمين

How many Geometrical Paces will reach from London to york the Distance Being Computed at 150 Miles?

Geometrical 1056 Paces in 1 mile

150

528000

1056

158400 Geometrical Paces

If a Coach Wheel be 4 yds 3/4 about, I Demand how many Times it will run Round Between Cambridge & London, y Distance being 50 miles

1760

50

88000

4

19 352000 (18526 answer

162

100

50

120

6

4 - 3/4

4

19 qrs

If a Man step $\frac{3}{4}$ of Yard, at a Step, I Demand how many of Those Steps, will reach from London to Bedford, the Distance being Computed at 40 Miles?

7040
40
3) 281600 (2
93866
Nº of Times

If a Wheel be 9 $\frac{3}{2}$ round how often will it run Round Between London & Exeter being 200 Miles?

$\frac{3}{2}$ in 3520 Mile
200
19) 704000 (37052 Nº of times
134
100
50
12

$\frac{9}{2} - \frac{3}{2}$
19

that 60 Minutes make 1 Hour
24 Hours — — — 1 Day
7 Days — — — 1 Week
4 Weeks — — — 1 Month.
13 Months & 1 Day
52 Weeks — — —
365 Days & 6 Hours — } Make One
8766 Hours — — —
525960 Minutes — — — } Year?

I Demand how many Minutes it is Since Our Saviours Incarnation it being accounted 1707 Years?

Minutes 525960 in 1 Year
1707 Years Since

3681720
3681720
525960
8978137 20

Minutes Since

If a Manchild was born in ye Year of our Lord 1691 I Demand his age, in Days, Hours & Minutes this Present year of our Lord

1707
1691
16
365 Days in 1 year
80
96
48
58040 Days in all

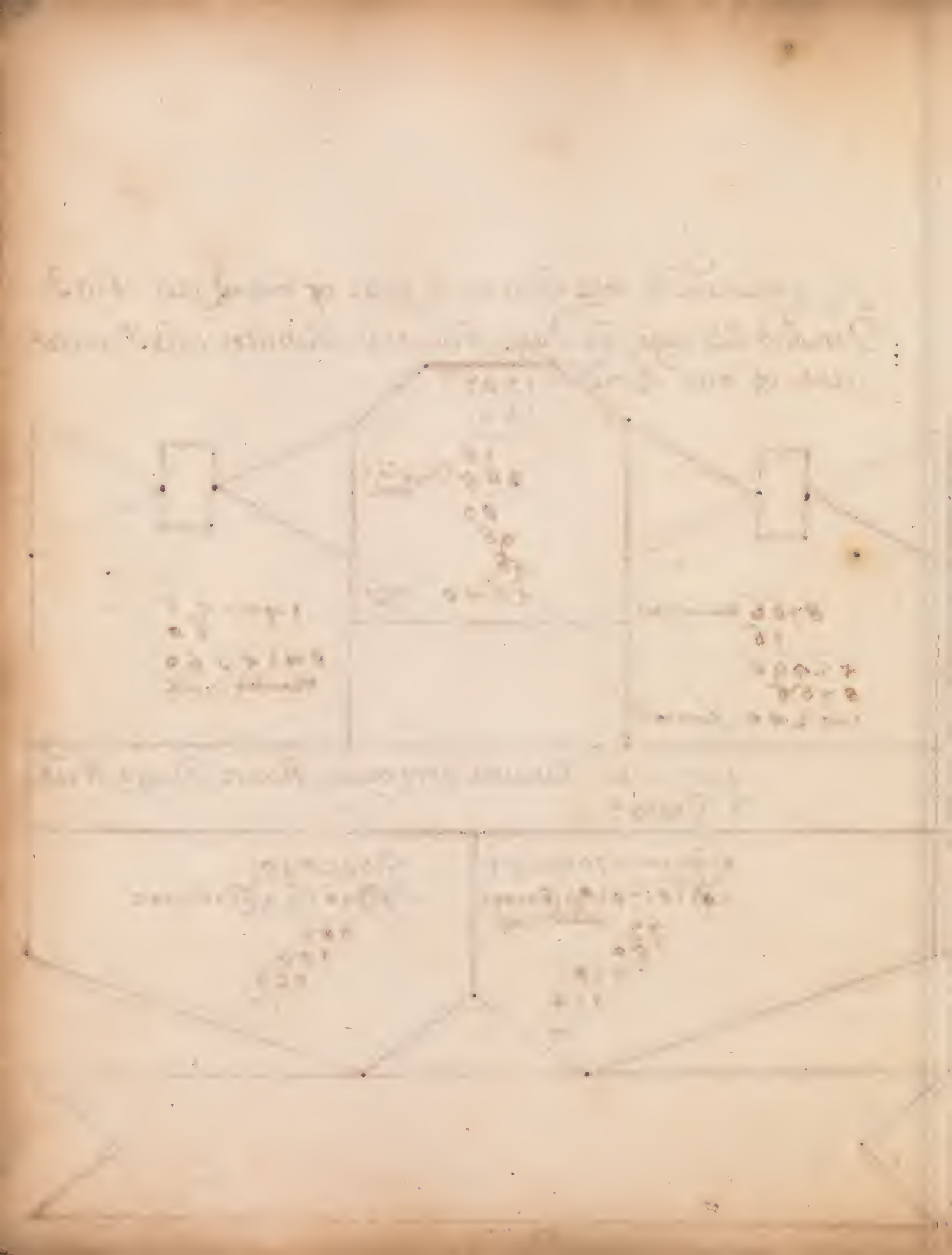
8766 Hour in 1 year
16
52596
8766
140256 Hours in all

140256
60
8415360
Minutes in all

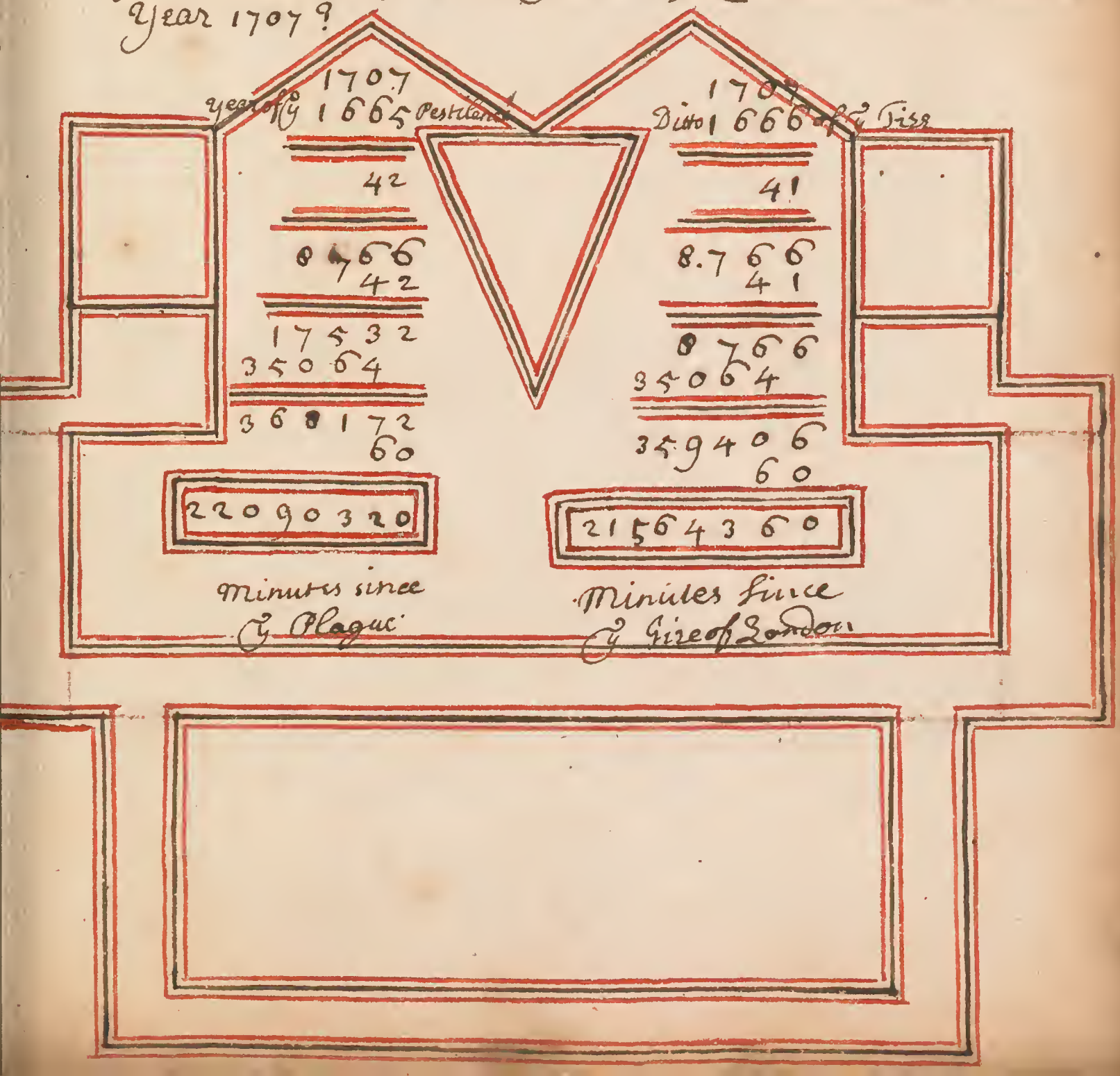
9102170844 Minutes how many Hours, Days, Weeks & Years?

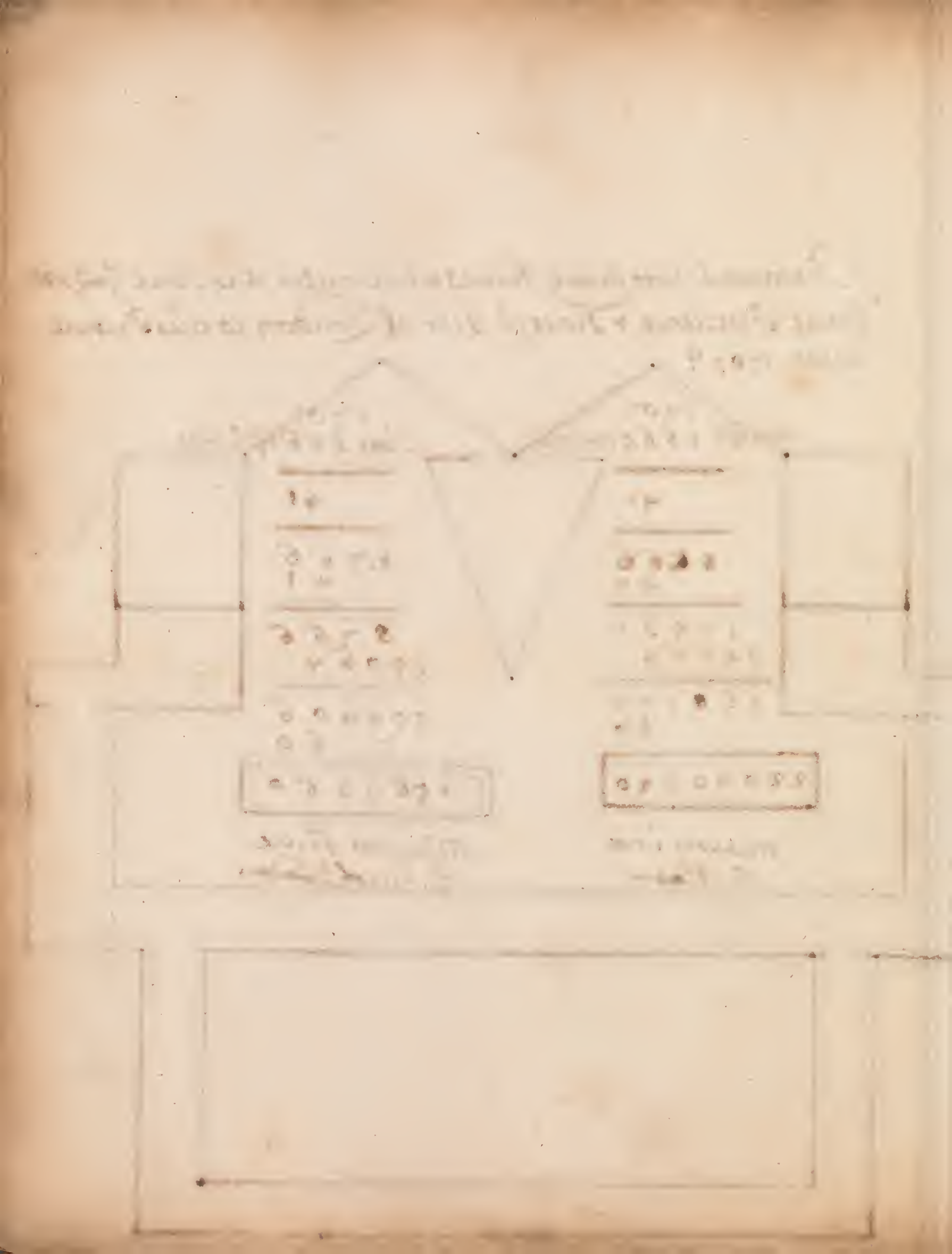
60)9102170844(151702844 Hours
24)151702844(6320952 Days
22
50
228
124
4

632095(2 weeks
52)9029.9.(17 36 Years
302
109
339
27



I Demand how many Hours & Minutes it is since ye Last Great Pestilence, & Since ye Fire of London to this Present Year 1707?





The Single Rule of Three,

is so called from its Nature, because there are 3 Number Given to find out a 4th Of ye 3 Given Numbers, 2 are Always of one Kind, & in working your Question must be Reduced, or Brought into one Denomination if not so before

In ye Single Rule Direct for stating your Question you must always Place that Number first which is first in your Question, then ye Price in ye Middle, & ye Number which asketh ye Question in the third Place.

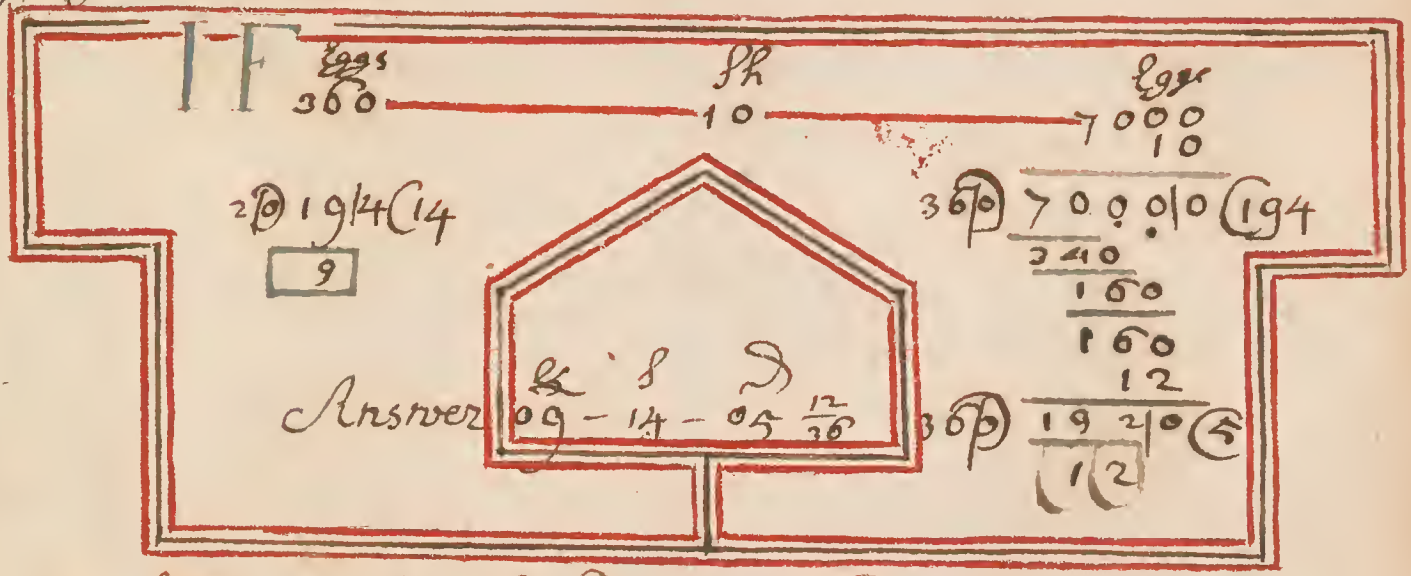
And then your Question being Stated, to work the Summ.

1st First you must bring your 1st & 3d Numbers into one Name.

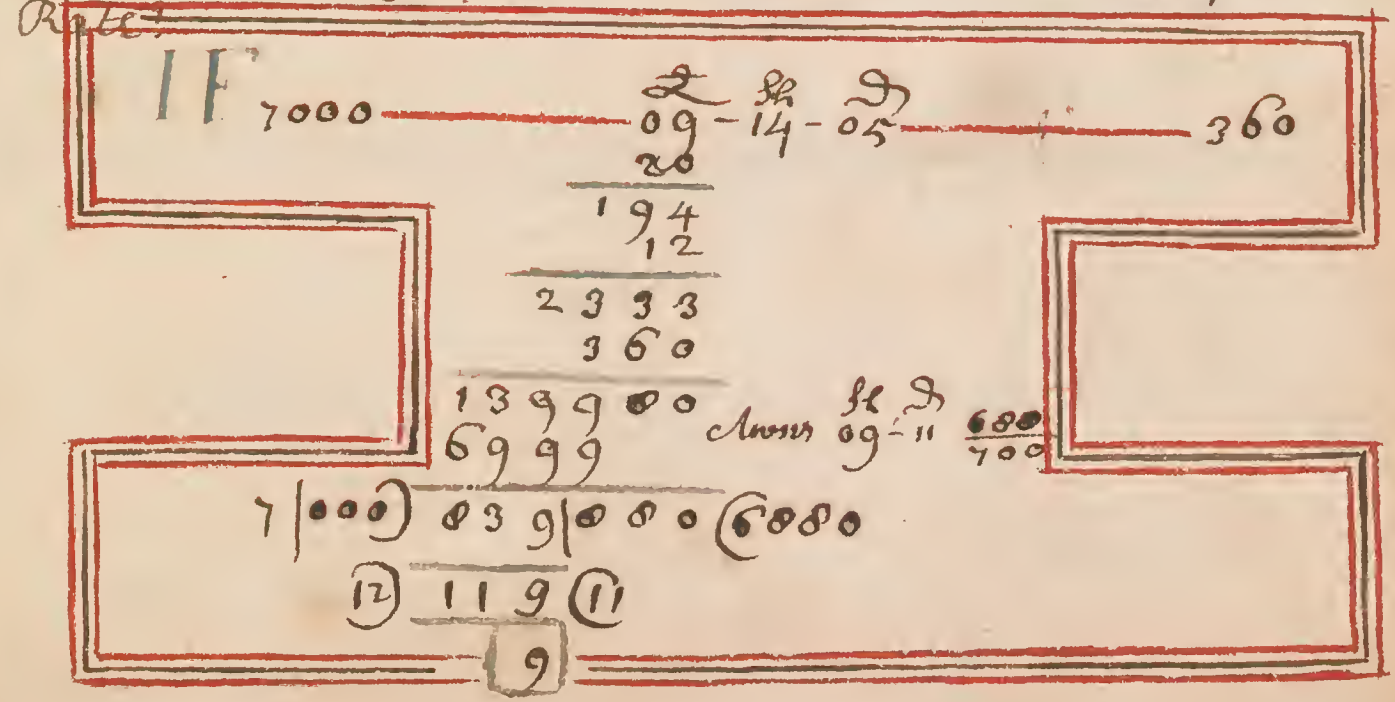
2dly Secondly Bring Your Middle Number into ye least Name.
Mentioned, or as Low as ye Question requires to be answer'd in.

3dly Thirdly Multiply ye 3d Number, by ye 2, & Divide ye Product
by 1st Number, & ye Quotient is ye Answer to ye Question,
in ye Same Name, that ye Left your Middle Number in.

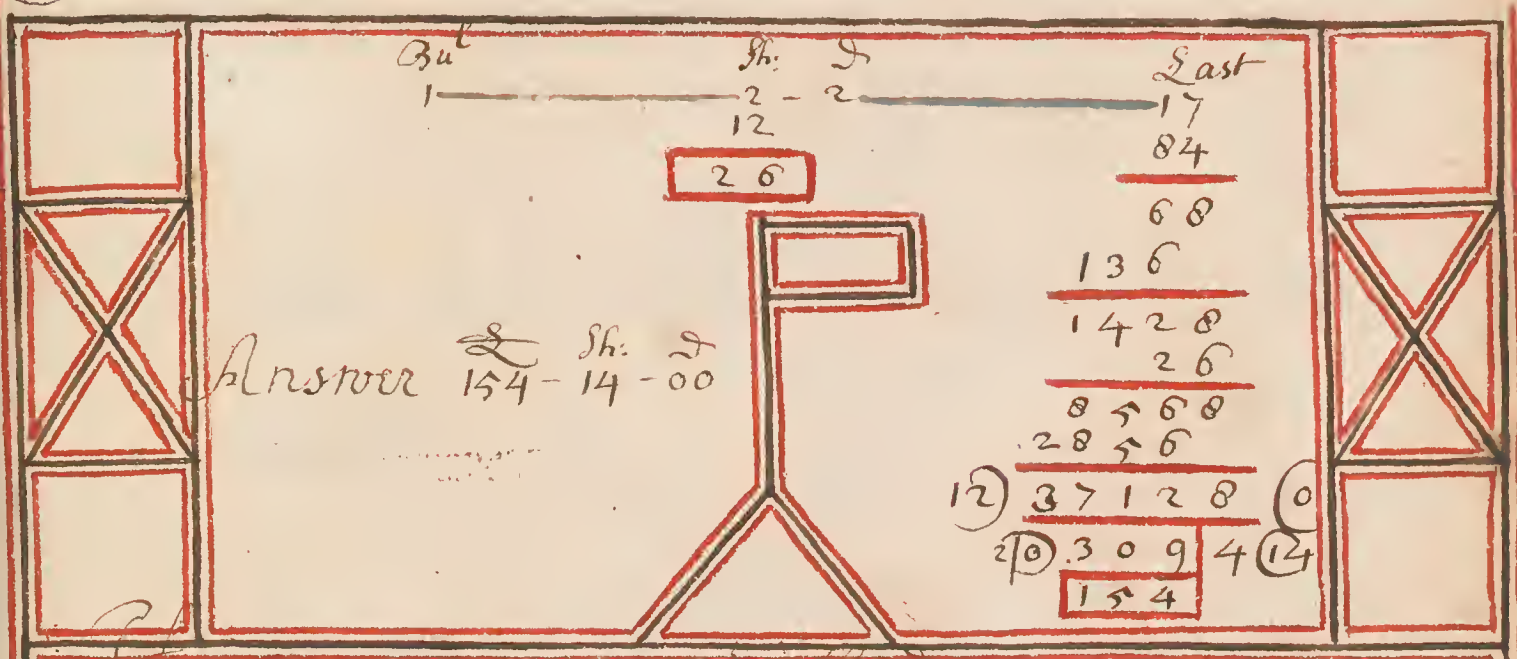
If 360 of Eggs Cost 10 s I Demand ye Price of 7000 at what Rate?



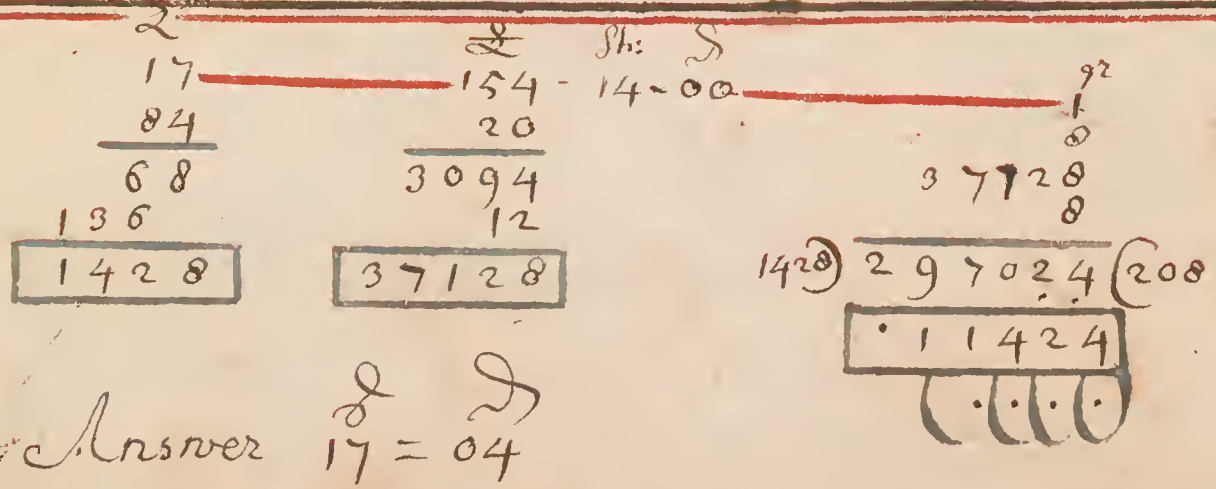
If 7000 Eggs Cost £ 09 - s 14 - d 5 I Demand the Price of 360 at that Rate?

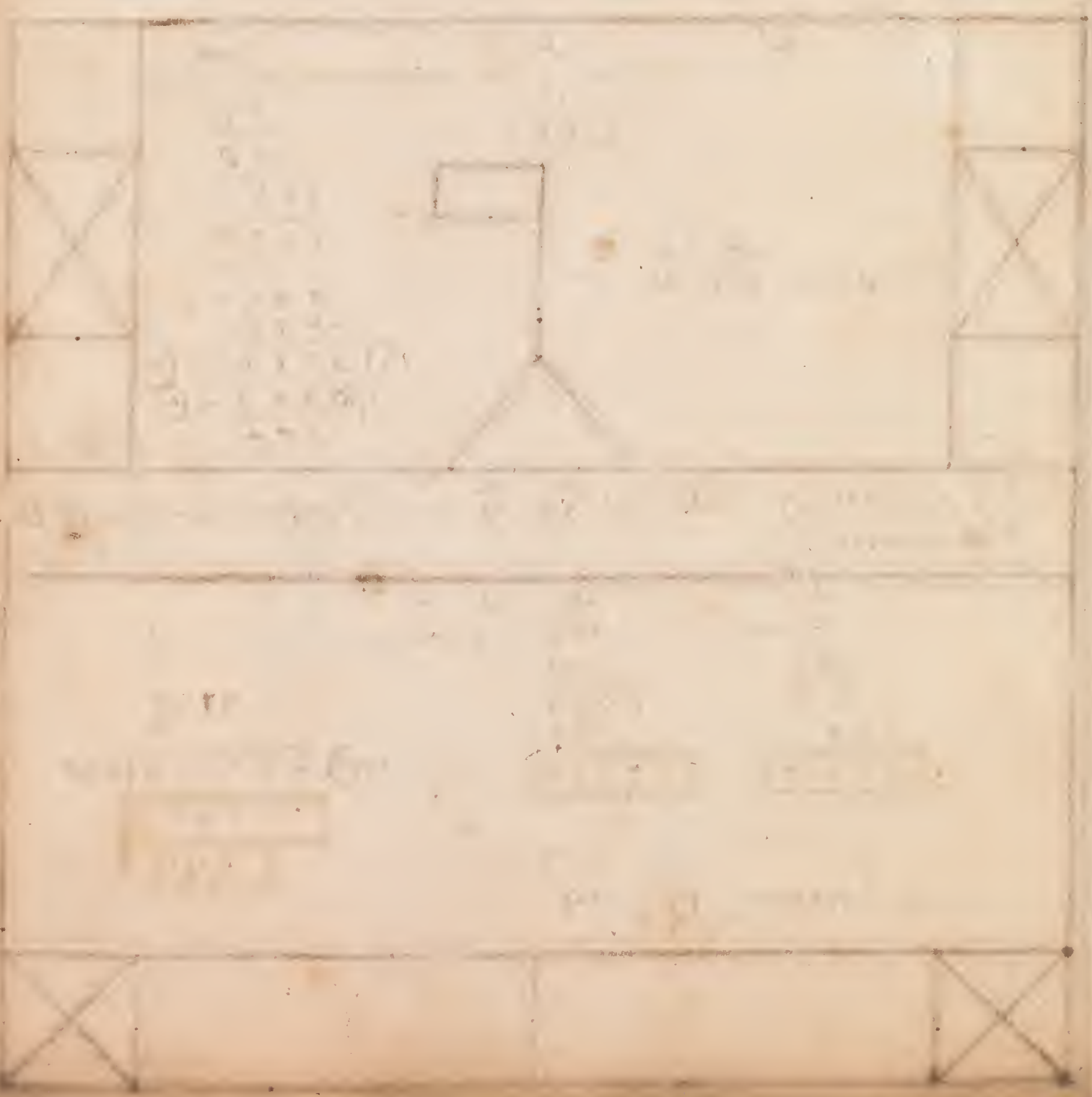


If Oats be 2/2 ℔ Bushel I Demand ye Price of 17 Lasts at that Rate

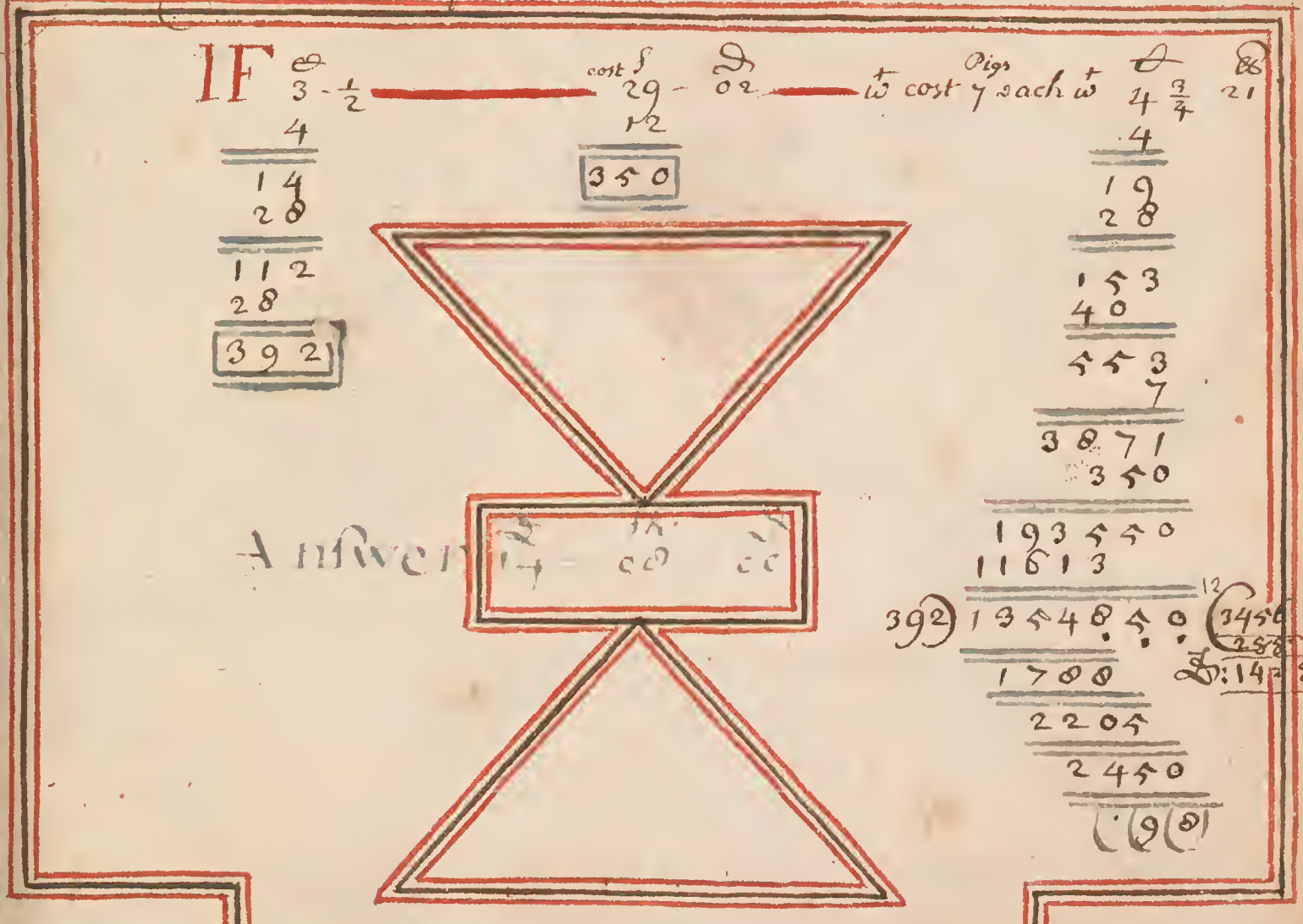


If 17 Lasts of Oats cost £154 - 14 - 00 I Demand how much that is ℔ Quarter?



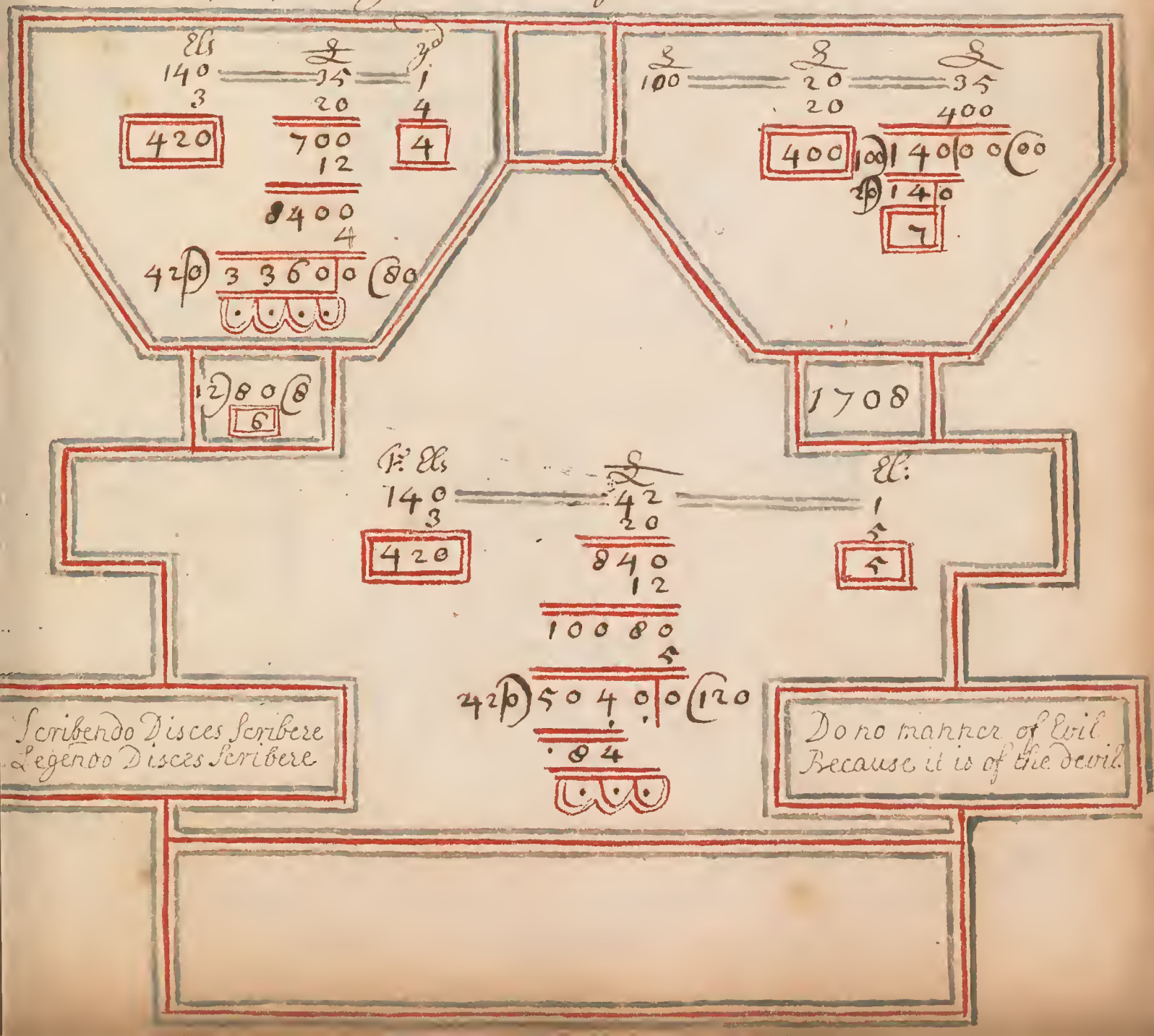


If 3 ½ of Lead be worth £ 29-02 I Demand ye Worth of 7 Piggs each qr 4-¾-21 at ye Rate?

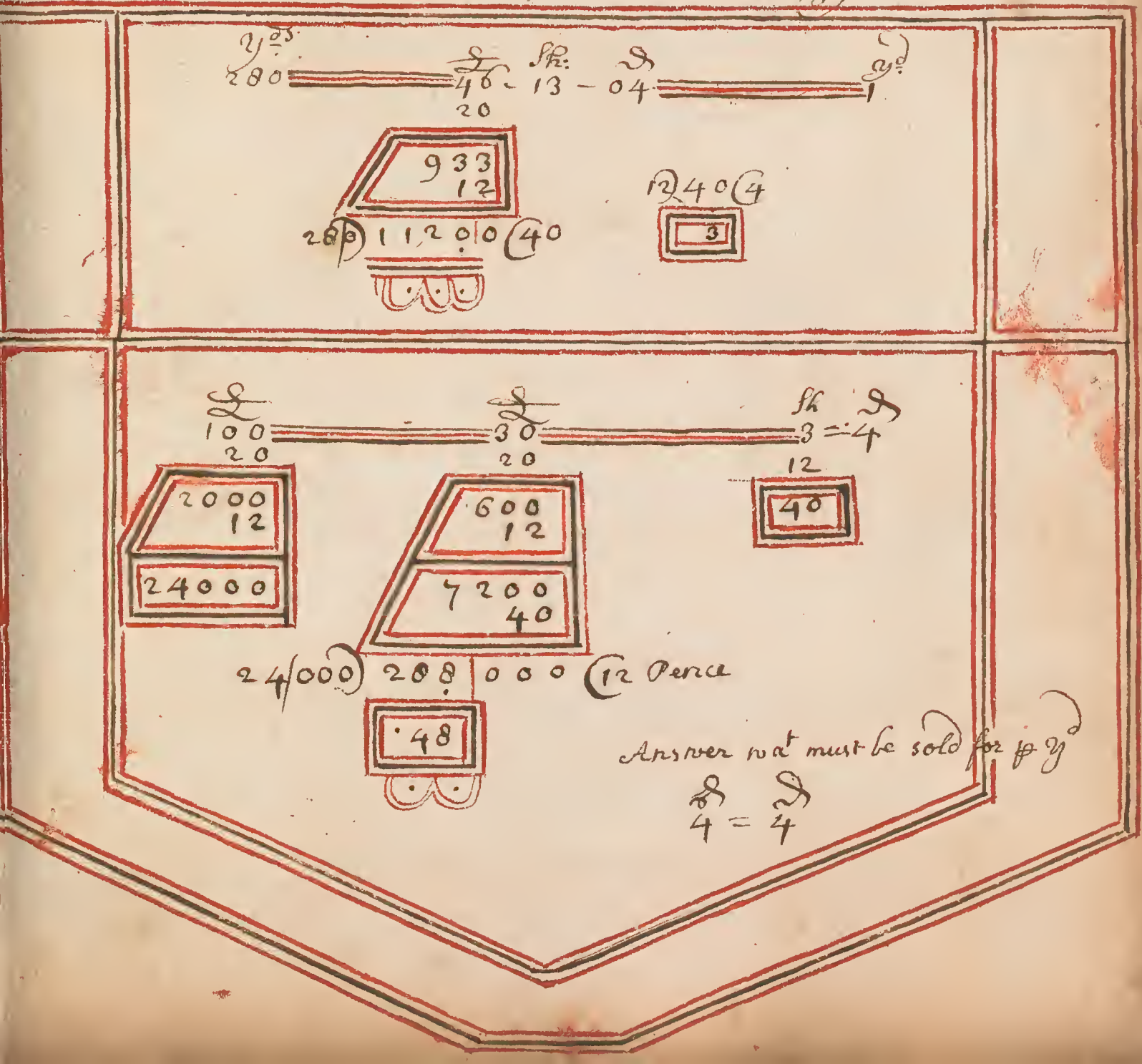


Beauty's a Flower which Fadeth away, Decay
But Vertue's an Ornament wch nere will
But if Beauty & Vertue in one Woman be,
If She wants a Husband ye Bring Her to me.

If a Merchant buy 7 Pcs of Bagg Holland of 140 Ells for £35 I Demand what it stands him in p Yard, & how much he must sell it for p Ellng to gain £20 p Cent?



IF I buy 280 yds of York Shire Kersies for £ 46 - sh 13 - d 04 I Demand what it stands me in Per Yard, & how I must Sell it again to get 30 ℔ Cent ℔ Annum Profit by it?



If a Salesman buy 47 Yds of West Country Cloth to make up into Cloths, & under the Taylors hands it Shrinks 6 Yards & ½ & cost him £11 — 15s 9d I Demand how he must Rate it again to his Chapmen so as to Lose Nothing by it?

	yds	qrs	nls
whole measure	47	0	0 which
Shrunk up	06	2	0 so that
There Remains	40	2	0

IF yds 40 - ½ — £ 11 — s 15 — d — yd 1

4 — 20 — 4

162 — 235 — 4

12

2820

4

162) 11280 (69

1560

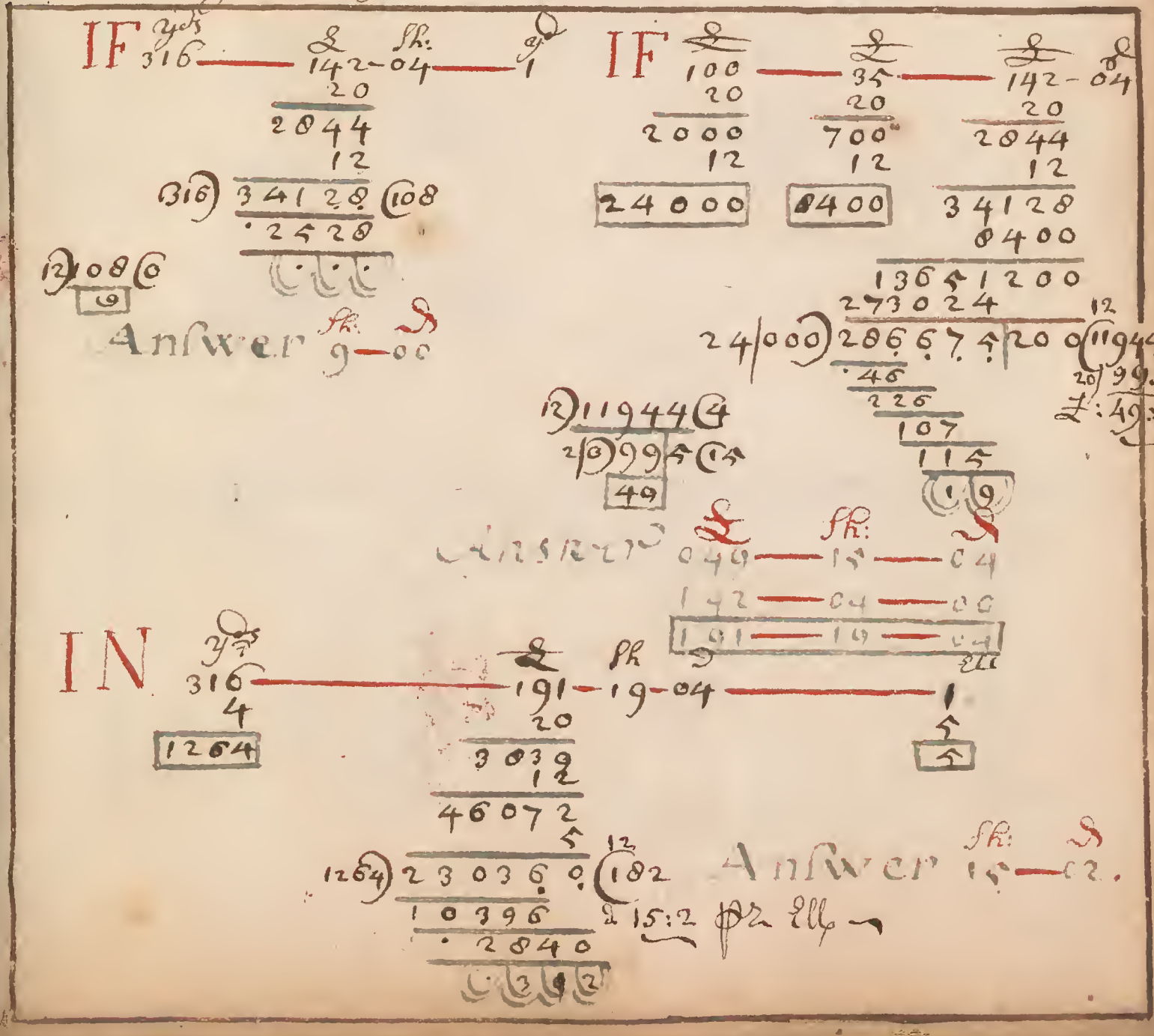
1026

162) 4080 (2

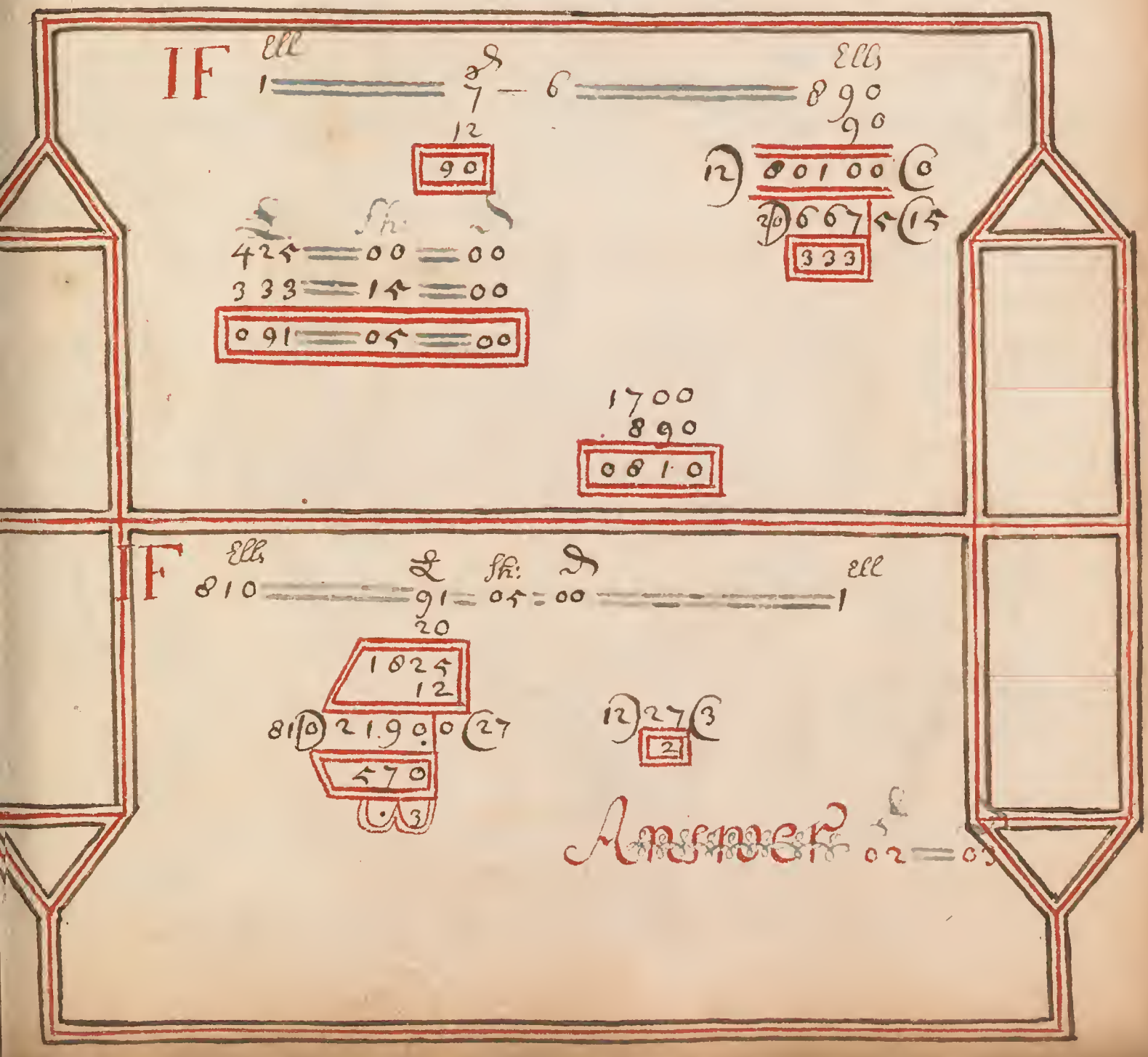
84

Answer Sh: 5 — D: 9 — qrs. ½

A Merchant both 316 Y^{ds} of Broad cloth for £142-04 I Demand what it stands him in ℔ Y^{d} & how much he must Sell it for ℔ Ell Eng^{h} to gain £35 ℔ Cent & also how much he gain in y^{e} whole at that Rate?



A Merchant. bot 1700 Ells of Bagg Holland for £425 for 890 Ells whereof he gave 7/6 p Ell I Demand how much p Ell the Rest Stood him in?

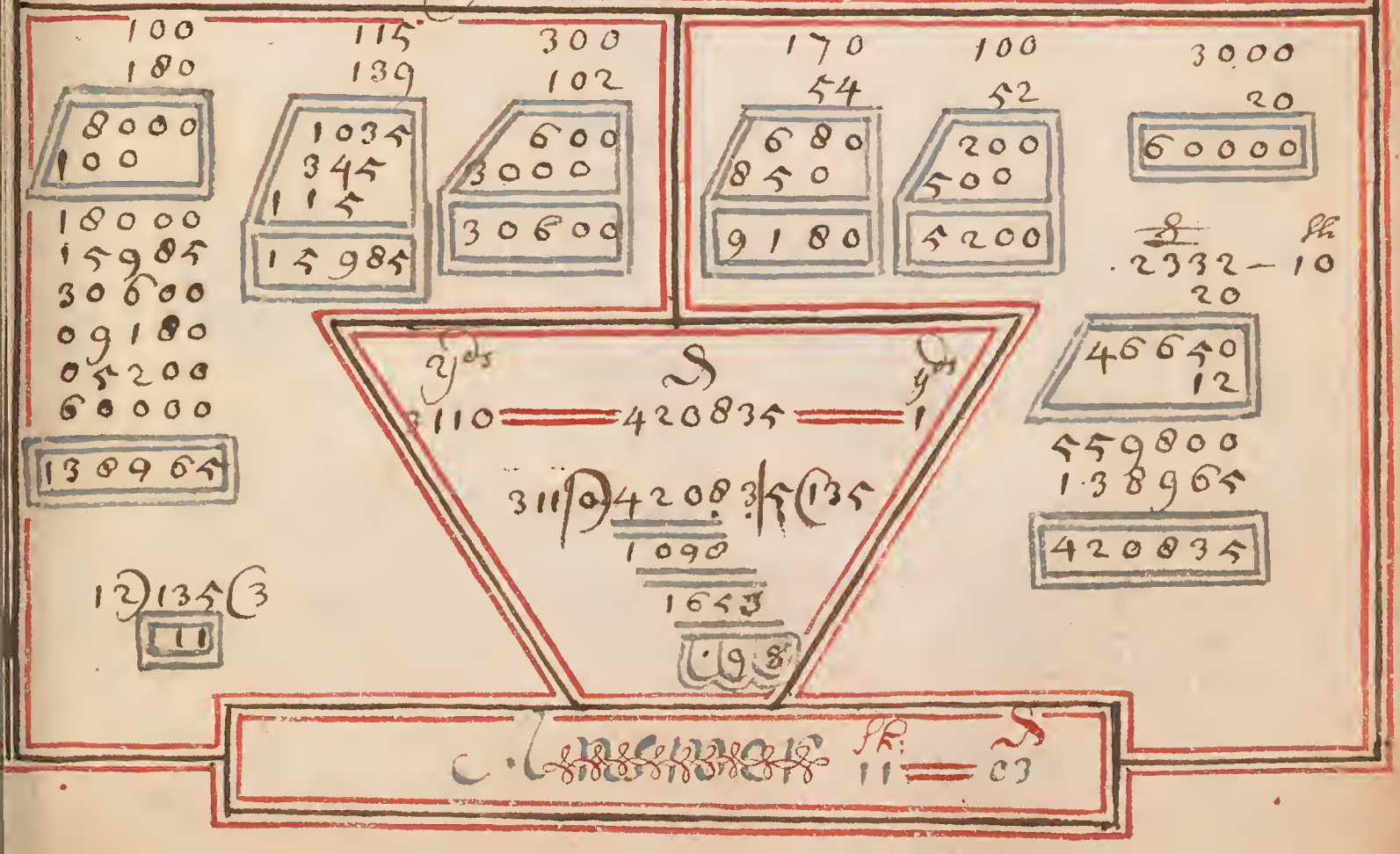


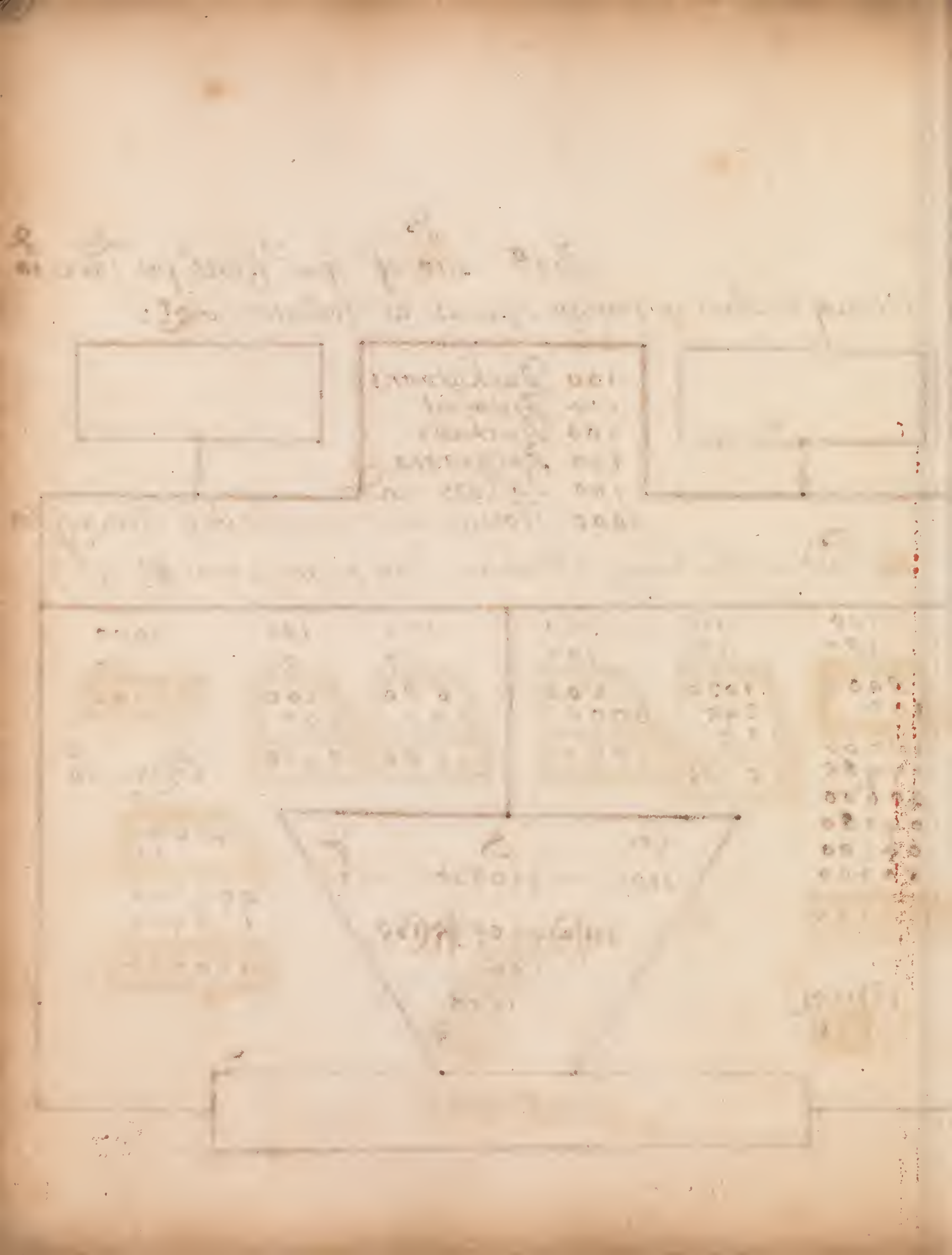
Bo^{t} ^{yds} 3110 of Spa^{n} Cloth for £ 2332-10 £

Whereof he Paid in foreign Species as Follow: viz^{t}:

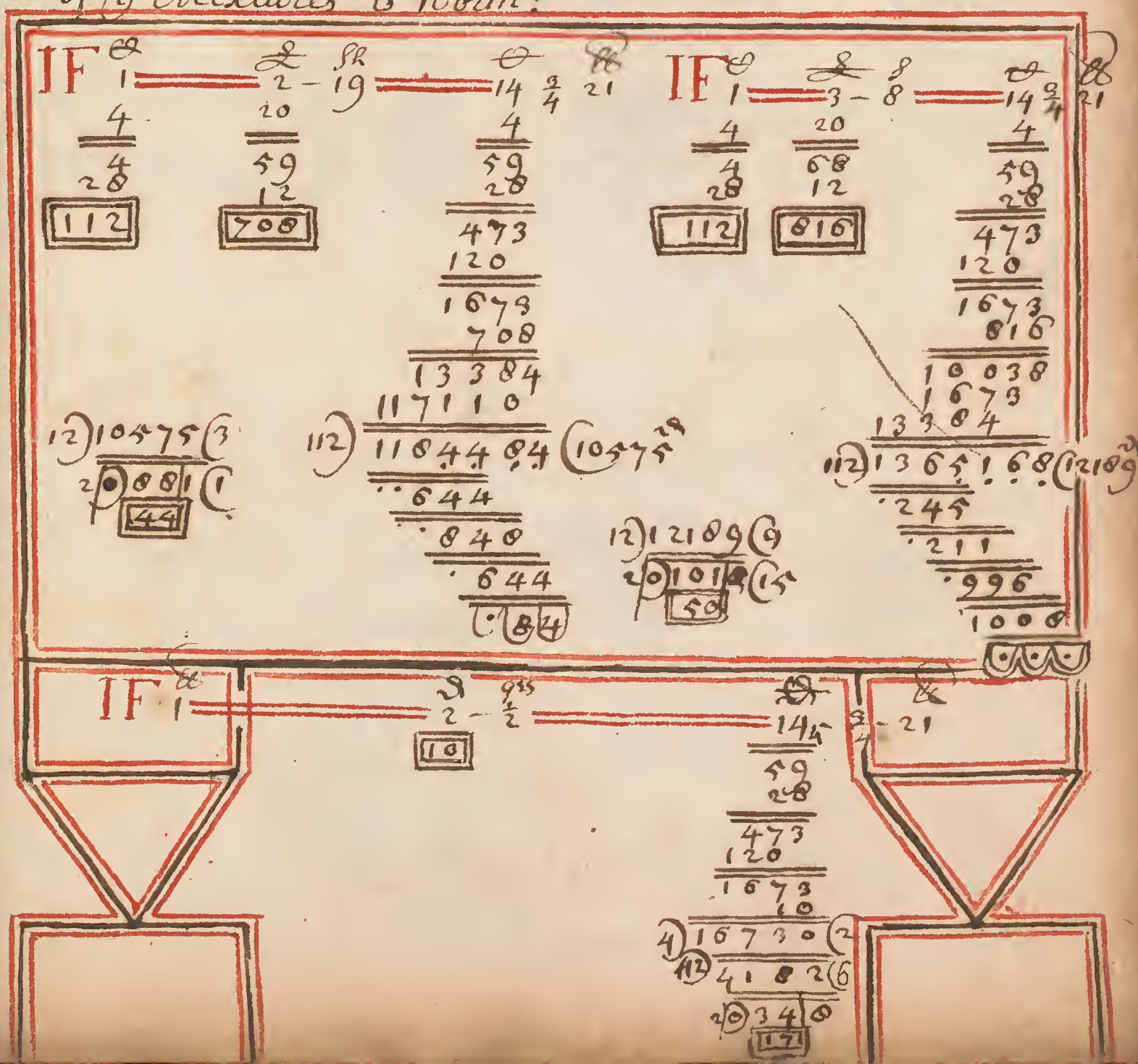
100 Duckatoons
115 Pistolest
300 Duckatts
170 Patacoons
100 Dollars and
3000 Florins, — — And ȳ Remainder

he Paid in Shillings, I Demand how much it was ℔ ^{yd} ?





a Grocer bôtt, 4 Chests of Sugar each ℔. Neat
£ 14 3/4 ℔ 21 the one worth ℔ £ 2/19 another worth £ 3/8 ℔ ℔. The 3ᵈ
Chest worth Per ℔ 2 ½ ℔ 4th 3 1/4 I Demand what a ℔
of 4 Mixtures is Worth?



IF 1 ℔ 3 - 1/4 ℥ 14 3/4 ℔ 21

4 | 4

13

59
28
473
120
1673
13
5079
1673
4) 21749 (1
12) 5437
20) 443 (13
23

℔	℥	ʒ
44	01	03
50	15	09
17	08	06 1/2
22	13	01 1/4
134	18	07 3/4

The worth of 9 Chests

1673
1673
1673
1673
6692

Total No. of ℔ in 9 Chests

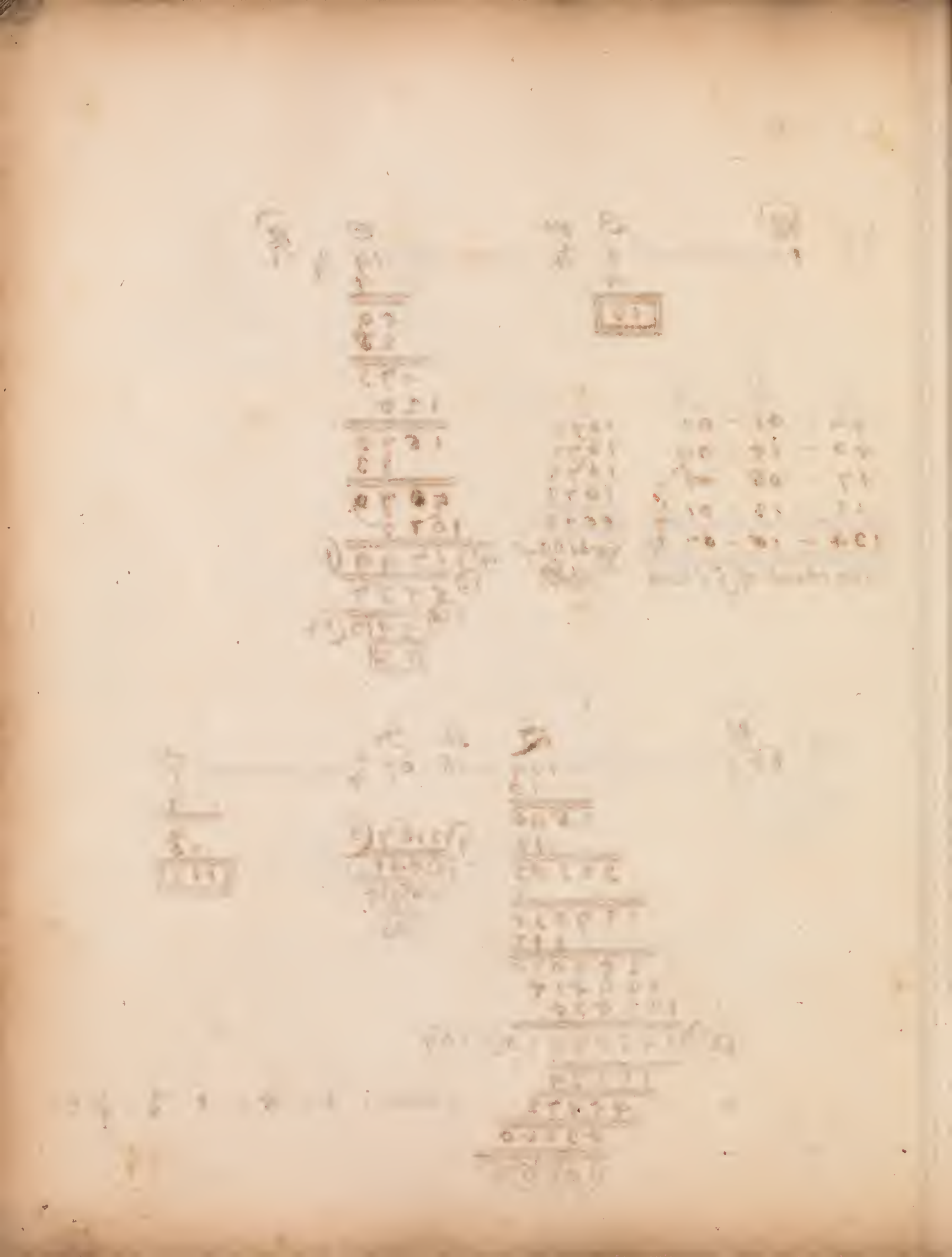
IF 6692 ℔ 134 - 18 - 07 3/4 ℥ 1

20
2698
12
32383
4
129535
112
2590700
129535
129535
6692) 14507920 (2167
11239
45472
53200
6356

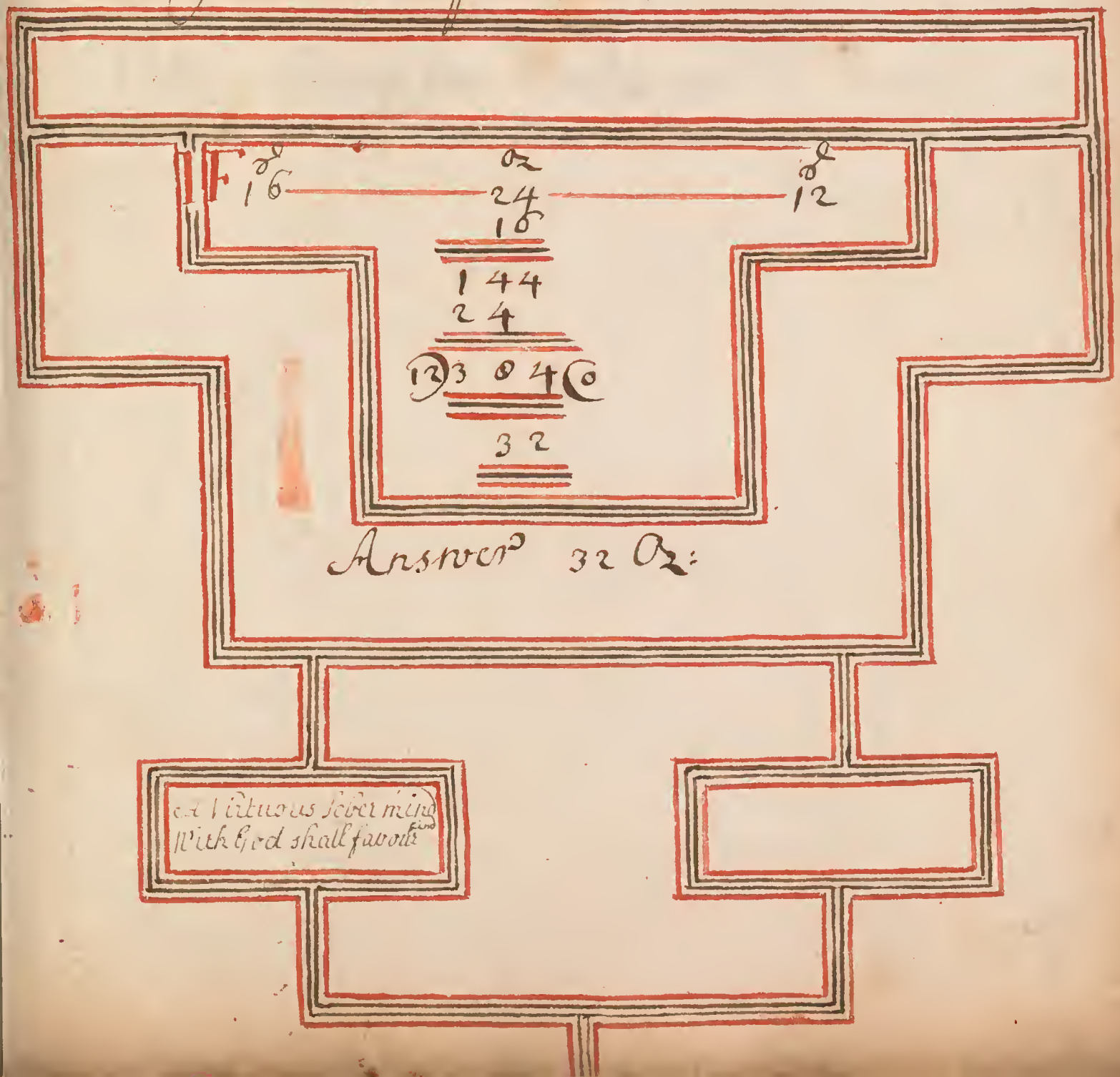
4) 2167 (3
12) 541 (1
2) 45 (2

4
4
28
112

Answer 2 ℔ 5 ℥ 1 3/4 ℔ ℥



If when Wheat is Sold at 16 ℔ Buskel ȳ 6 Penny Louf weigh 24 Ounces I Demand how much it ought to weigh when ȳ Price is 12 ℔ Buskel?



The Single Rule of Three Inverse,

is when there are 3 Numbers Given to find out a Fourth, in Proportion to ye 3 Given Numbers so as 4th proceed from ye 2d according to ye Same Rate & Degree as ye 1st Proceeds from ye 3d

Or the Proportion is;

As ye 3d Number is in Proportion to ye 2d, So is ye First to the Fourth.

And as in ye Direct Rule, you Multiply'd ye Second & Third Numbers together, & Divided their Product by ye First to Find out a Fourth Proportional Number: So, in ye Inverted Rule, You must Multiply ye Second Term By the First (or the First by the Second) & Divide ye Product thereof By ye Third Term, and ye Quotient will be ye Fourth Term Sought in an Inverted Proportion, The Same Order being Observed in this Rule, as in ye Direct Rule, For Stating ye Stating Question, & ye you may Know when your Question is Stated which Rule it Belongs to, (whether ye Last or this) Observe what Follows.

When your Question is stated, & your Numbers Orderly Disposed, Consider in ye First Place, Whether ye 4th Term or Number sought, Ought to be More or Less than ye 2d Term, Then ye

The Single Rule of Three In-
verse

Lesser Extreme must be your Divisor, but if it Requires Less, then ye Biggest Extream must be your Divisor (in this Case ye First & Third Numbers are called Extreams in Respect of ye Second) Having found out your Divisor, You may Know whether your Question belong to ye Rule Direct or Inverse, For if ye 3d Term be your Divisor, then it is Inverse, But if ye first Term be your Divisor Then it is a Direct Rule.

If One Gentleman Lends another £1000 for 18 Mo: He Promising to Requite ye Courtesie upon Occasion, & when ye Time Comes Can spare but £800, How Long ought ye Former Gentleman to Keep it, to Retaliate ye Kindness of ye £1000?

If £1000 — Mo 18 — £800

1000

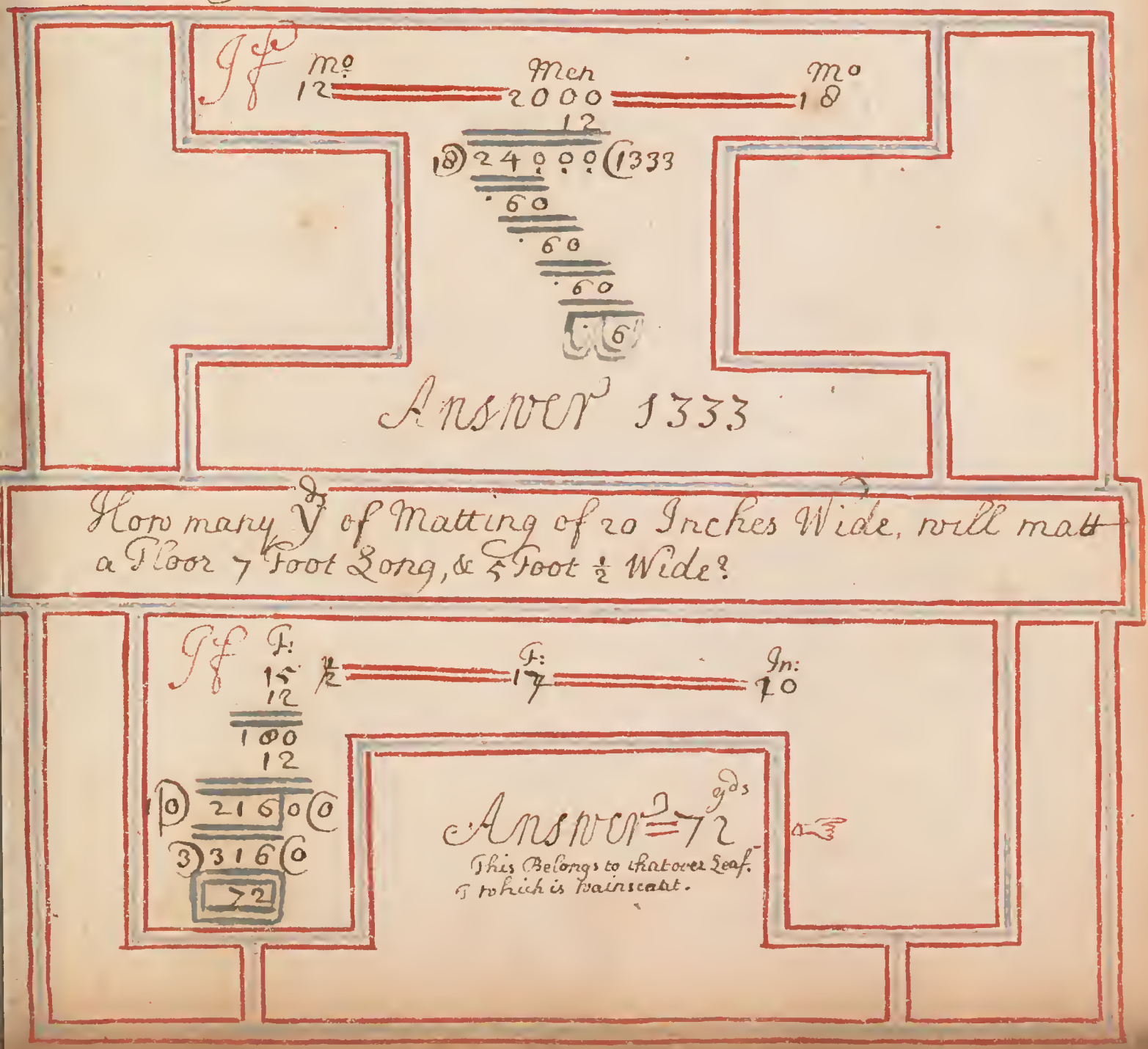
800 | 100000 (4

22

Mo

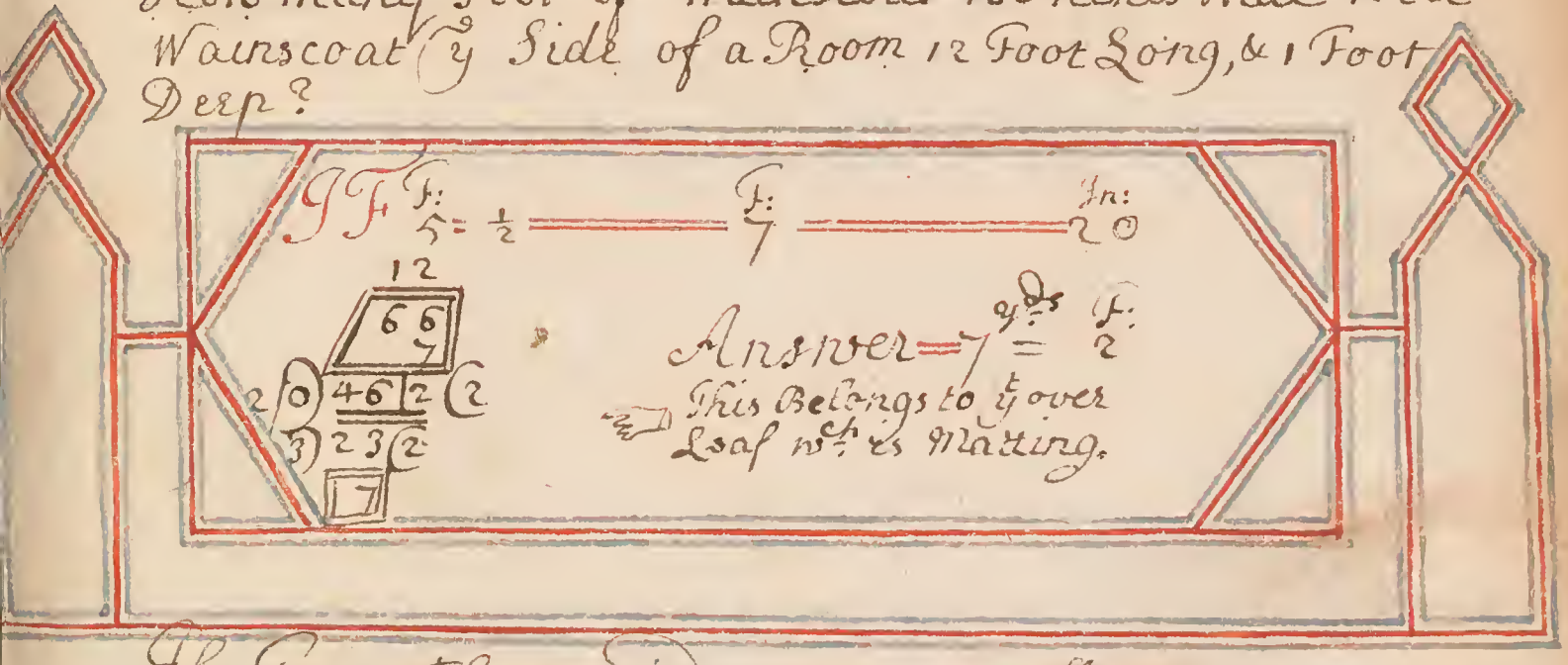
Answer 22-½.

If a Governour of a Fort of Castle have 2000 Men in Garrison, & Provision Sufficient for 12 Mo: but being Besieged by an Enemy is willing to Defend ye Same 18 Mo: How many must he Turn out, to make ye Provisions Last so Long?

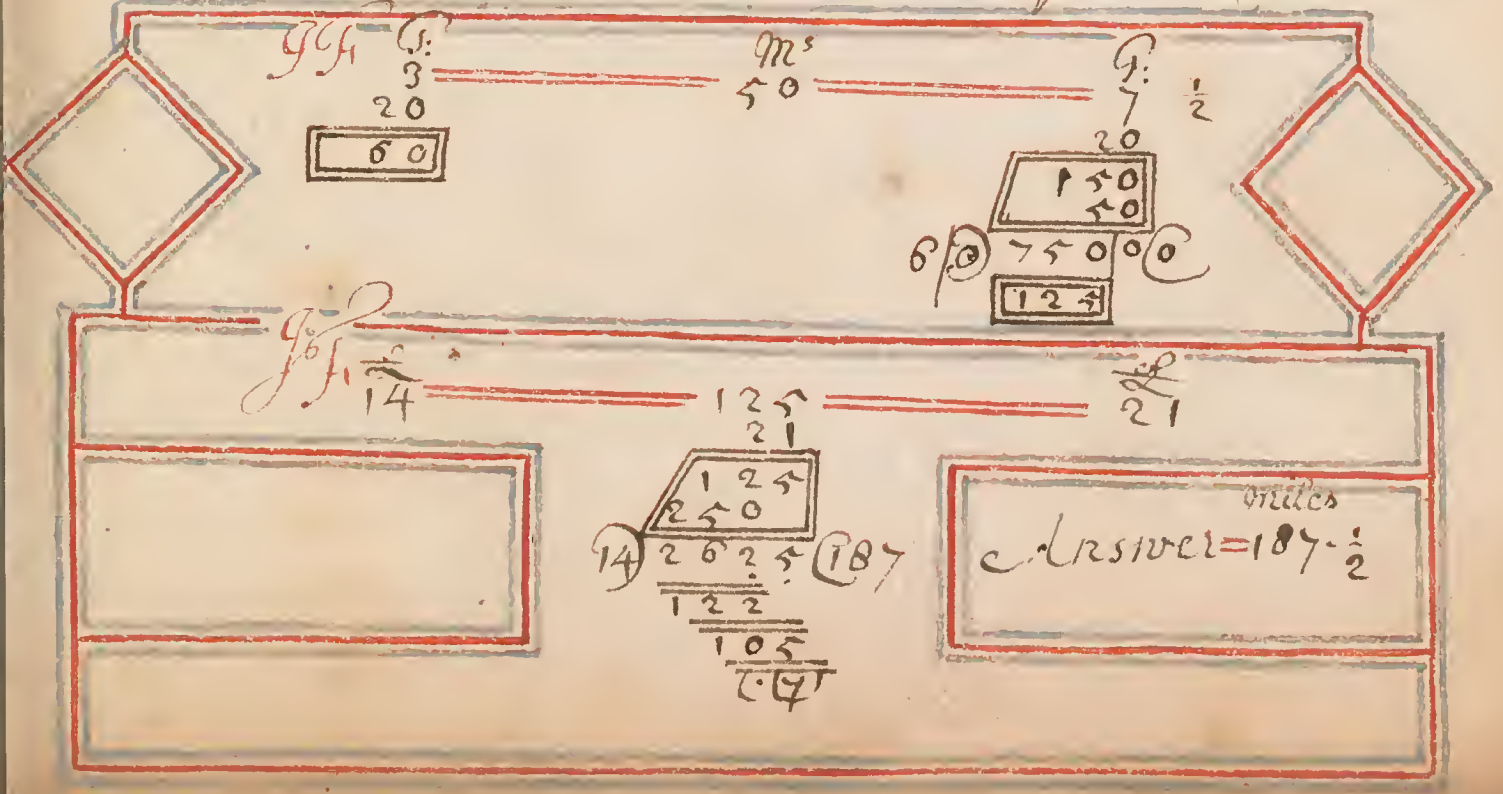


How many Yds of Matting of 20 Inches Wide, will matt a Floor 7 Foot Long, & 5 Foot ½ Wide?

How many Foot of Wainscoat 10 Inches Wide will Wainscoat 2 Side of a Room 12 Foot Long, & 1 Foot Deep?



If 3 Tonn wt be Carried 50 Miles for £14, I Demand how many Miles 7 Tonn ½ can be Carried for £21 at ye Rate?



Is where there are 5 Given Nos, requiring a 6th in Proportion, to be Found by 2 Single Rules Direct.

The 5 Given Nos in ye Double Rule of 3 Consists of 2 Parts, viz: First, a Supposition, & Secondly a Demand; ye Supposition is contain'd in ye 3 first of ye 5 Given Nos, & ye Demand lyes in ye 2 Last; as ℔ 100 in 12 mo Gain 6, what will 75 Gain in 9 mo: Here ye Supposition is Expressed in 100 12 & 6 for it is said if (or suppose) a 100 in 12 mo gain 6, & ye Demand Sayeth in 75 & 9 mo for it is Demanded how much 75 will gain in 9 mos?

When your question is Stated, ye next thing will be to Dispose of ye Given Nos in Due Order & Place, as a preparative for Resolution, wch ye you may Do, 1st Observe which of ye Given Nos in ye Supposition is of ye Denomination wth ye Nos required, for ye must be ye 2 Nos (of ye 1st Operation) of ye Single Rule of 3, & 1 of ye other Nos in ye Supposition (it matters not wch) must be ye 1st Nos & ye 5th Nos in ye Demand, wch is of ye Same Denomination wth ye 1st must be ye 3d Nos wch 3 Nos be thus placed, Will make 1 Perfect Question in ye Single Rule of 3, as in ye Formentioned Example, & yn you must work as you Did in

By Single Rule of 3 Direct to Find out a 4th No. in Proportion, wch must be ye Middle No. in ye Last Stating.

If £100 in 12 mo. gain £6 what will £1705-06-08 Gain in 22 Mo. at that Rate?

IF £100 = £06 = £1705-06-08

100 20 2000 12 24000

06 20 120 12 1440

1705 20 34106 12 409280 1440

16371200
1637120
409280

24000 | 589363200 | 24546

109
133
136
163
19

12.2455 4
2|0 6
102

IF Mo. 12 = £102-06-04 = 22 Mo

102 20 2046 12 24552 24000

98224000
40112

589344000
22

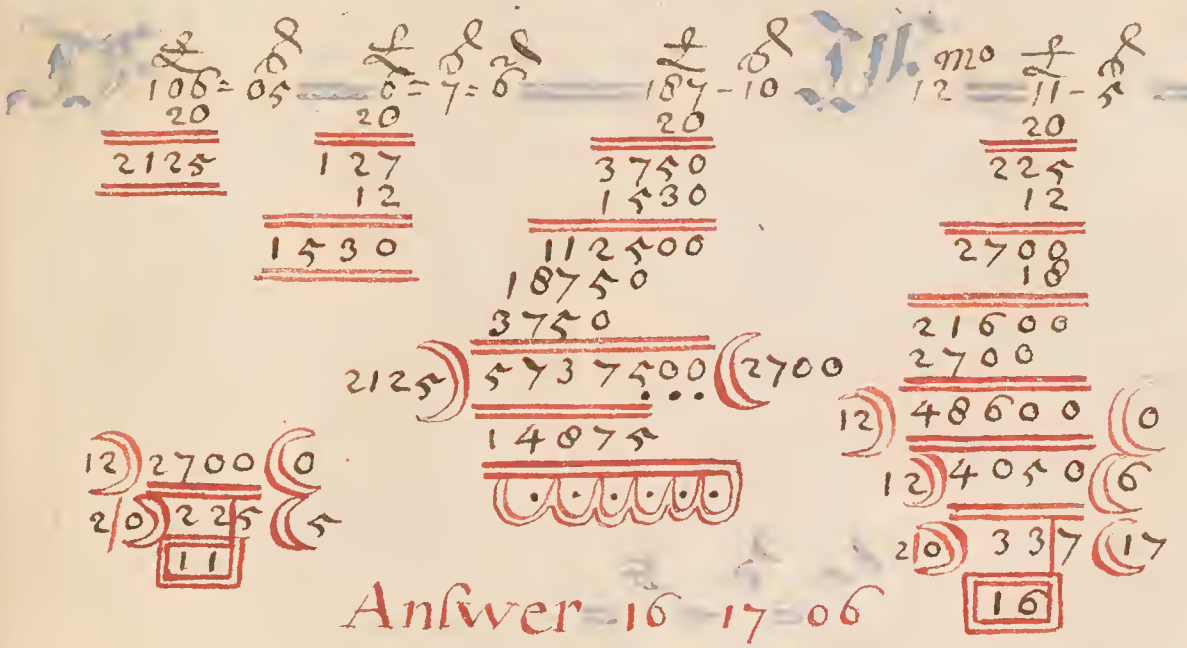
11786888000
11786888000

24000 | 12965568000 | 540232

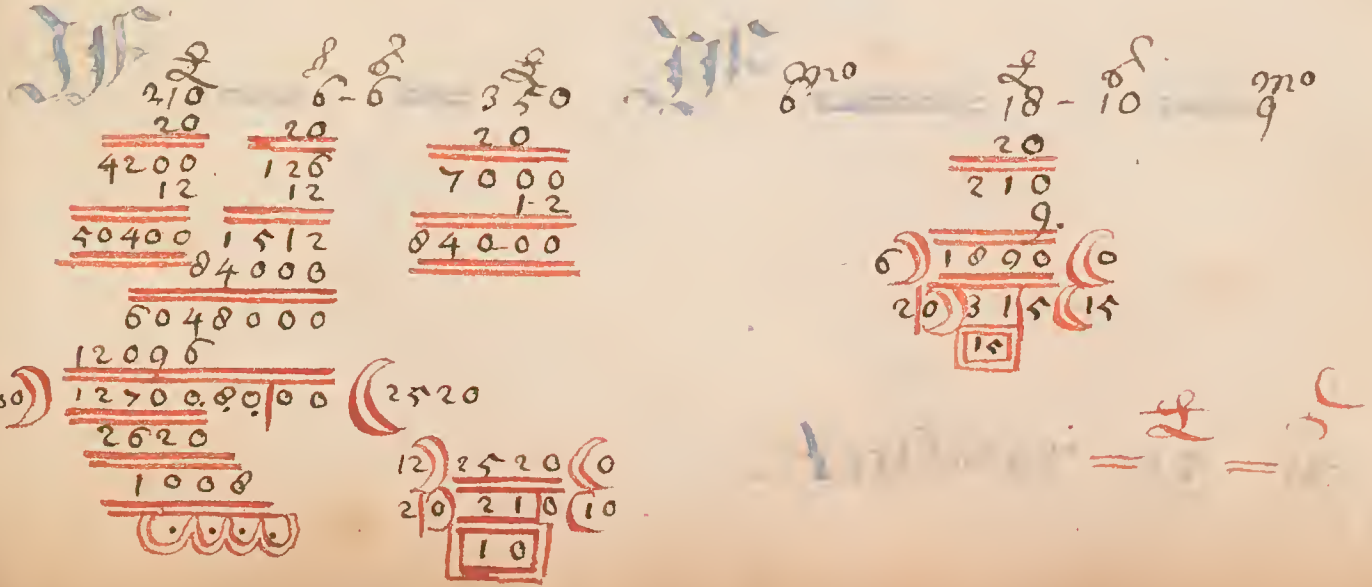
·96
··55
·76
·48
··

12.540232 5
12.45019 4
2|0 23041 11
0531

If £ 106-05 In 12 Mo gains £ 6=07=06 it will 187-10 Gain in 18 Mo at that Rate?



If £ 6-06 be ye Interest of £ 210 for 6 Mo I Demand ye Interest 350 for 9 Mo at that Rate?



If £16-17-06 be the Interest of £187-10 for 18 Mo. I Demand
the Principal will gain £12-15 for in 12 Mo at that Rate?

If £16-17-06 — £187-10 — £12-15 If 18 Mo — £1416-13-4 — 12 Mo

20 20 20 20
337 3750 255 28333
12 12 12 12
4046 45000 3060 340000
3060 12
27000000 18 4080000 226666
13500000 48
4046 137700000 34000 120
16220 120
120
120
12

12 34000 4 12 226666 10
2 02833 13 2 018888 8
141 944

If £16-17-06 — £187-10 — £12-15 If 18 Mo — £141-13-04 — 12 Mo

20 20 20 20
337 3750 255 2833
12 12 12 12
4046 45000 3060 34000
3060 12
27000000 18 408000 22666
13500000 40
4046 137700000 34000 120
16220 120
120
12 34000 4 Answer £94-8-10
20 2033 13
141

If 160 Acres of Grass be Mowed by 12 Men in 18 Days I Demand how many Men can Mow 800 Acres in 24 Days at that Rate?

IF Dys 18 — Mn 12 — Dys 24

12
18 | 288 | 16
108
· ·

IF As 160 — M 16 — As 800

800
160 | 12800 | 80
· · ·

Answer 80 Mn

If 16 Men in 12 Weeks Spend £96 I Demand how many Men are required to Spend £576 in 27 Weeks at that Rate?

IF £ 96 — Mn 15 — £ 576

16
3456
576
96 | 9216 | 96
576
· ·

IF Wks 12 — £ 96 — Wks 27

27
672
192
12 | 2592 | 0
216

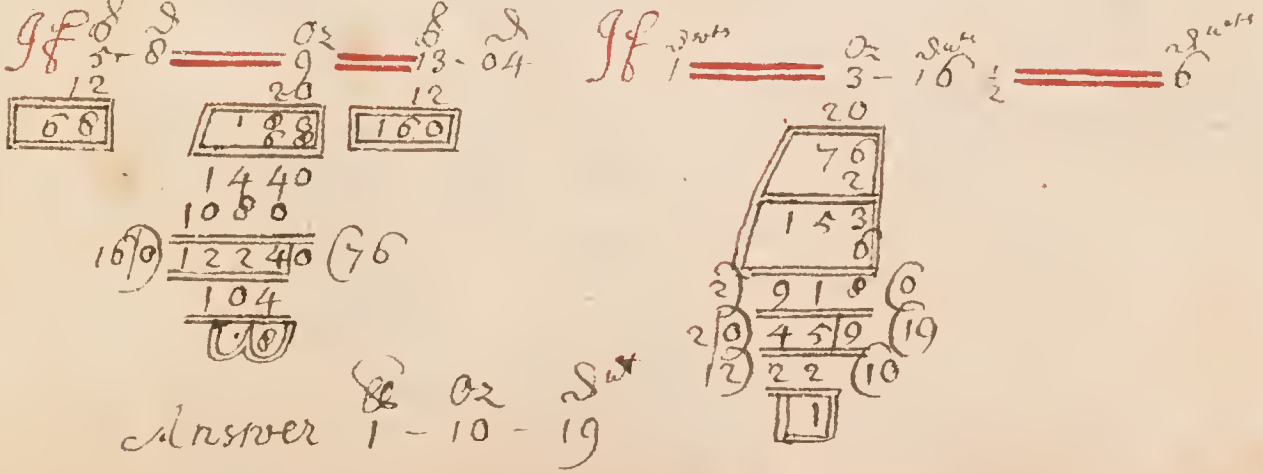
Answer 216 Men

The Double Rule of 3 Inverse

is when a Question in ye Double Rule of 3 is Resolved by 2 Single Rules of 3, & one of of those Single Rules falls out to be Inverse, or requires a 4th No in Proportion Reciprocal (for both ye Questions are never Inverse)

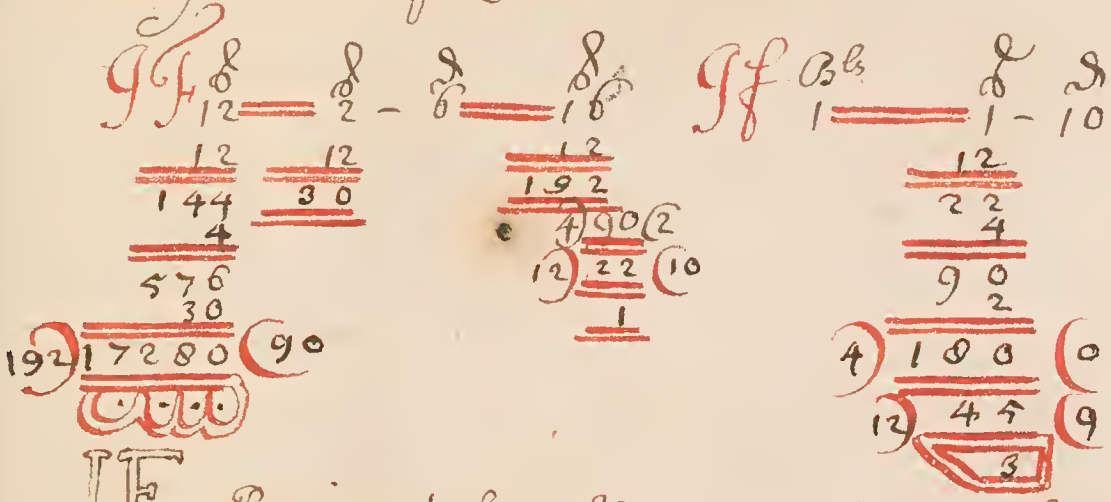
In all Questions of ye Double Rule of 3 (as well Inverse or Direct) you are to observe ye Directions Given in ye 2 ate Rule for Stating ye Question & Placing the Numbers.

If when Wheat cost 5/8 ℔ Bushel, the Penny Loaf Weigh 9 Ounces, I Demand ye weight of ye 6 Penny Loaf when ye Bushel costs 13/04?

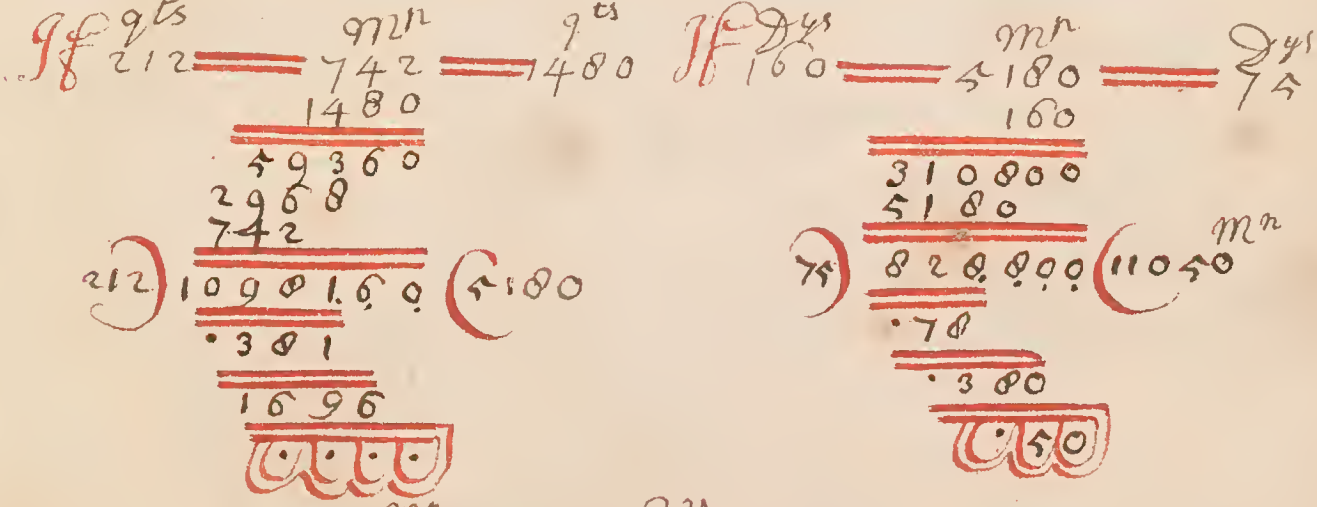


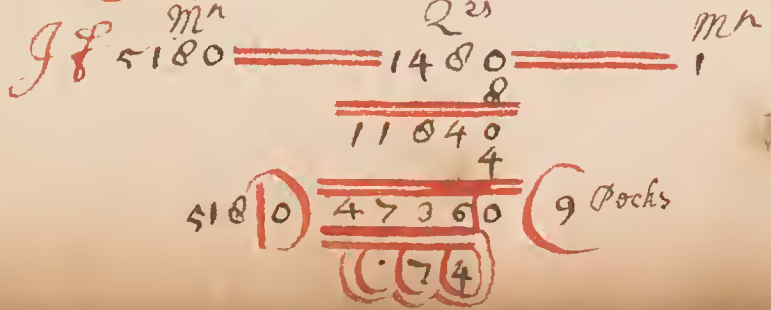
Answer 1 - 10 - 19

IF when Barly is at 12 ℔ Quarter ℔ Bushel of Malt be sold for 2/6 I Demand how much ℔ Price of 2 Bushels of Malt when Barly is at 16 ℔ Quarter?



IF a Regiment of 742 Men can eat up 212 Quarters of wheat in 160 Days, I Demand how many men can eat 1480 Qrs in 75 Days at that Rate, & also how much that is for Each Man ℔ Diem





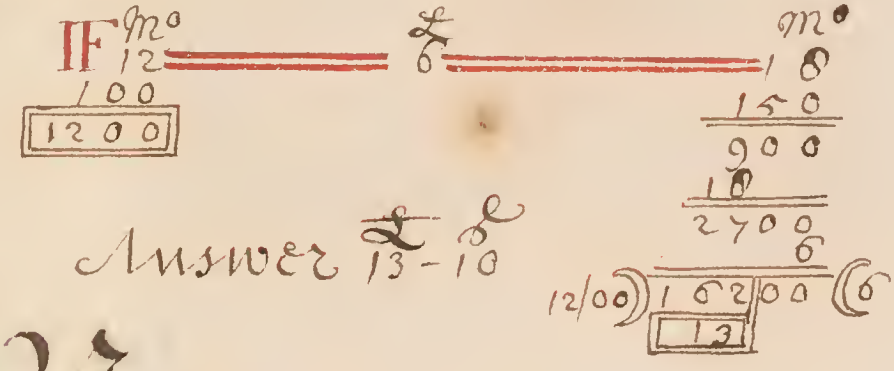
The Rule three Compos'd of 5 Nos

is when Questions wherein there are 5 Numbers given to find a 6th in Proportion thereunto are resolved by one Single Rule of 3 composed of 5 Given Nos. When Question may be Perform'd by ye Double Rule of 3 Direct, & it is required to resolve them by ye Rule of 3 compos'd, Then Dispose of ye Given Nos in Due order & place; as a preparative for Resolution; Which ye you may Doe; First observe which of ye Given Nos in ye Supposition is of ye same Denomination with ye No required for ye must be ye 2d No (in ye first Operation) of ye Single Rule of 3, & one of ye Others Nos in ye Supposition (it matters not Which) must be ye first No, & ye No in ye Demand which is of ye same Denomination with ye first, must be ye 3d No. & then

The Rule is

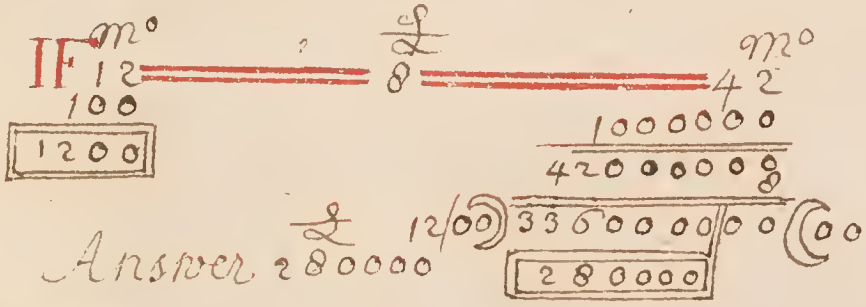
Multiply ye Terms (or Nos) ye stand one over ye other in ye first place, ye one by ye other, & make their Product ye first Term in ye Rule of 3 Direct, then multiply ye Terms ye stand one over ye other in ye 3d Place, & place there Product for ye 3d Term in ye Rule of 3 Direct & put ye Midle term of ye 3 uppermost for a 2d Term, then having found a 4th Proportional Direct to those 3, this 4th Proportional so found, shall be ye Answer required.

IF £100 in 12 Mo gain £6 it will £150 gain in 18 Mo at that Rate?



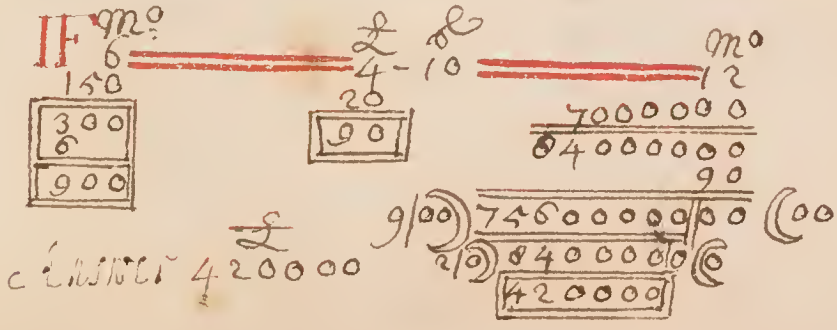
Answer £13-10

IF £100 in 12 Mo gain £8 it will £1000000 gain in 3 Years & 6 Mo at that Rate?



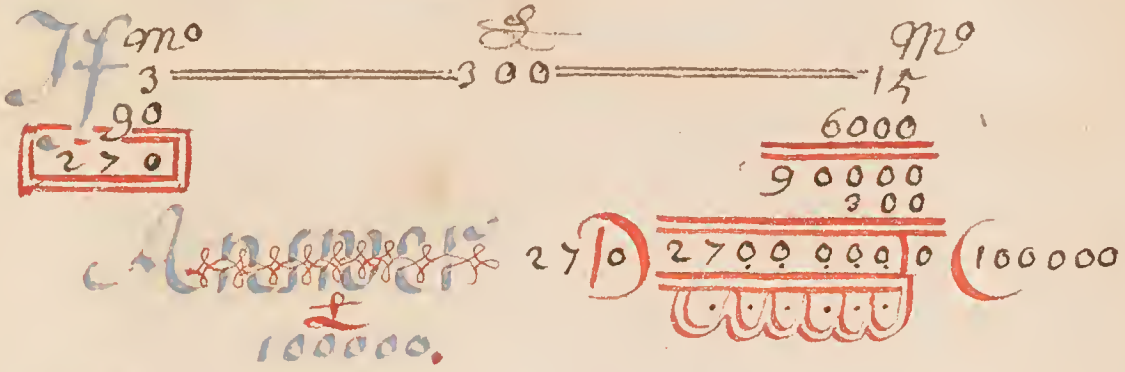
Answer £280000

IF £150 in 6 Mo Gain £4/10 what will £7000000 Gain in 12 Mo at that Rate?

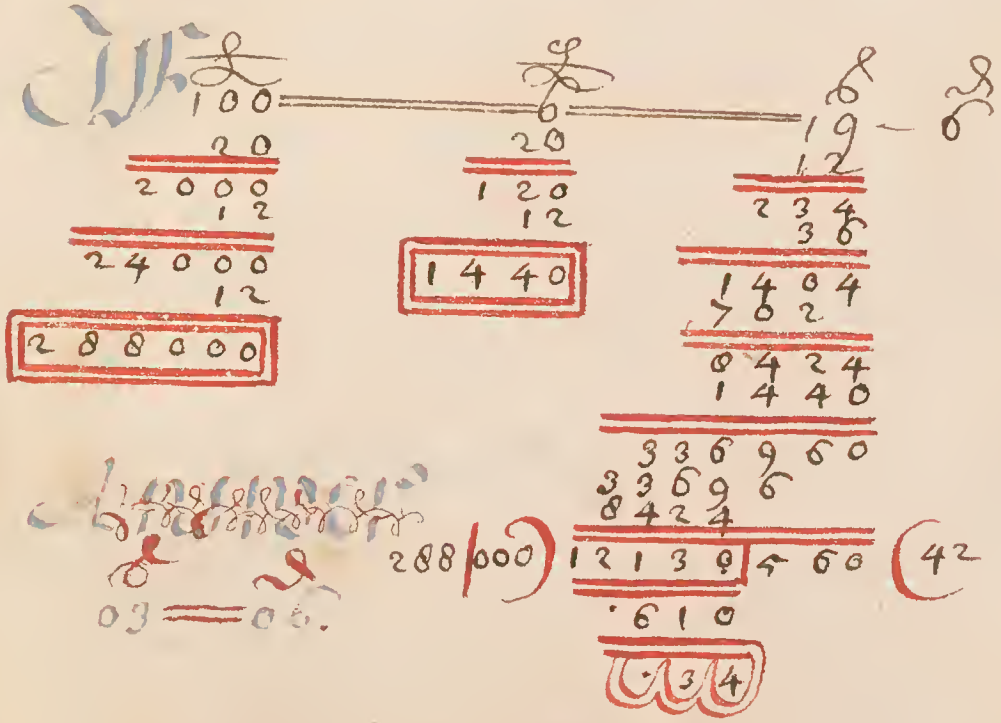


Answer £420000

IF £300 in 3 Mo. gain £4/10, what Principal Sum will gain £300 in 14 Mo. at that Rate?



IF £100 in 12 Mo. gain £6 it will 19/6 gain in 36 Mo. at that Rate?



Fellowship

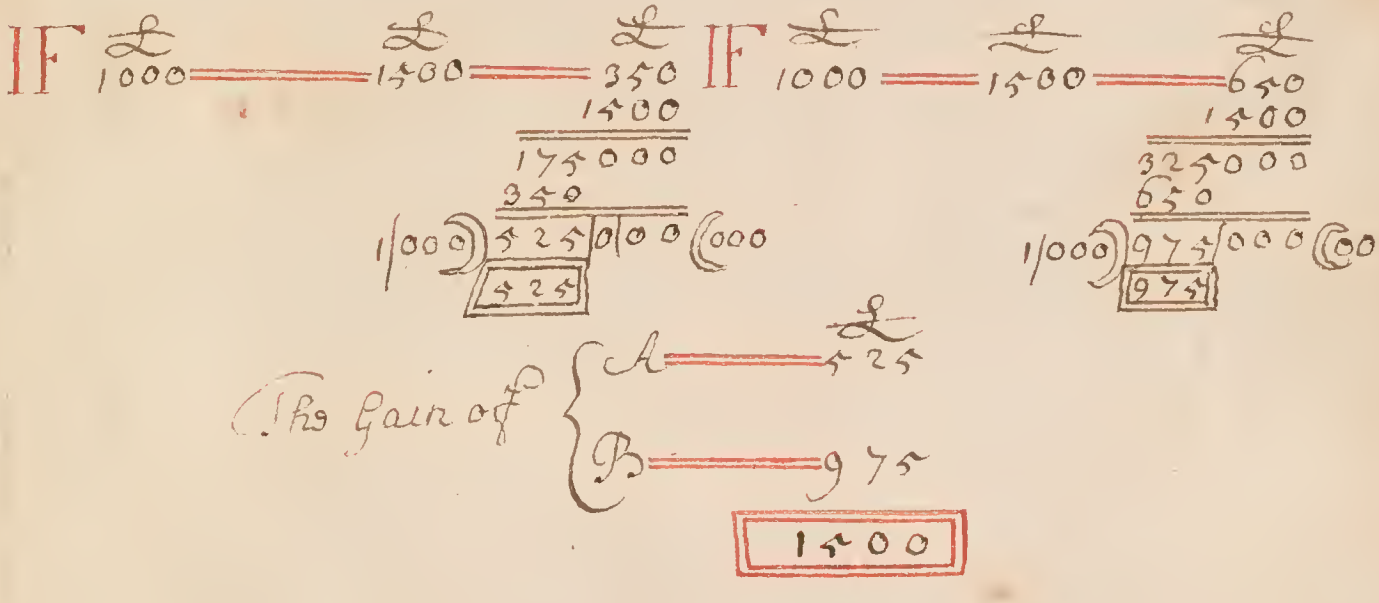
is that Rule of Plural Proportion whereby we ballance accompts depending between Divers Persons, having put together a generall stock, so yt they may every Man have his Proportional part of Loss or Gain.

The Rule of Fellowship is either Single or Double.

The Single Rule is, when ye Stocks Propounded, are Single Nos, without any respect or relation to Time, Each Partner Continuing his mony in stock for ye Same Time.

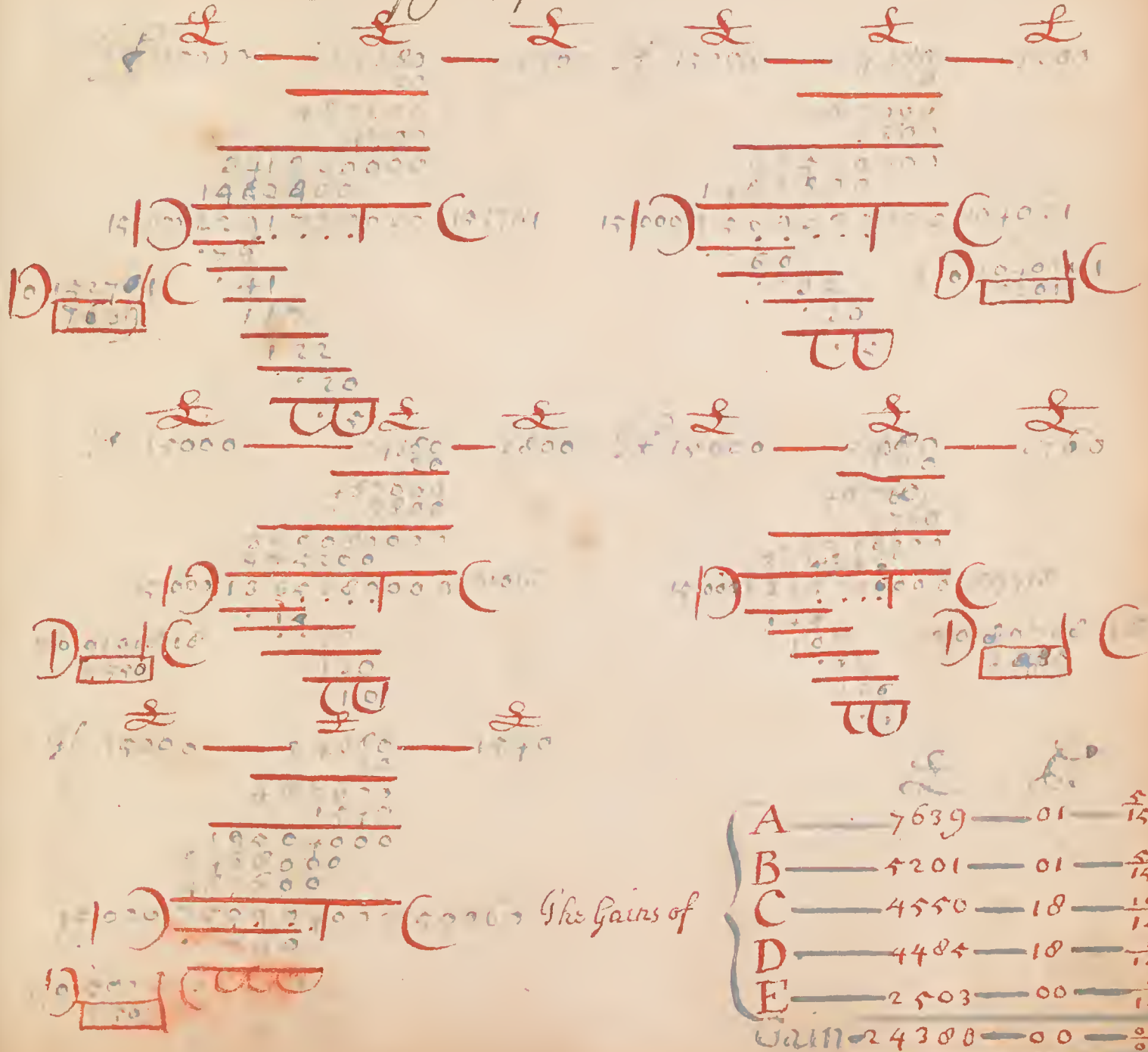
In ye Single Rule of Fellowship ye Proportion is, As ye whole stock of all ye Partners, is in Proportion to ye Total Loss or Gain, So is Each Man's Particular Share in ye Gain or Loss; Therefore take ye Total of all ye Stocks for ye first Term in ye Rule of 3, & ye whole Gain or Loss for ye 2d Term, & ye Particular Stock of any one of ye Partners for ye 3d Tm:, Then multiply & Divide according to ye Single Rule of 3 Direct & ye 4th Proportional No: is ye Particular Loss or Gain of him whose stock you made ye 2d No:, wherefore Repeat ye Rule of 3 as often as there are Particular Stocks or Partners, in ye Question, & ye 4th Terms Produced upon ye Several Operations, are ye Respective Gain or Loss of those Particular Stocks Given.

Two Merchants A & B, Company. A Puts In for his Share of Cy Stock £350, & B £650, wch together made £1000 wch they Gaind £1500. I Demand their Several Shars of ye Profit?



Rule

make a stock of £15000 whereof A Puts in 4700, B. 3200 C 2800, D 2760 & E 1540 now they gaind £24380 in all, therefore I Demand each mans Particular Share of y Profit?



The Gains of

	£	£
A	7639	01
B	4201	01
C	4550	18
D	4484	18
E	2503	00
Sum	24380	00

Three Merchants viz: A B C make a Stock of £12350 whereof A puts In £5000, B £3240, & C the Remainder & in Trading instead of Gaining they Lose £5000 I Demand each mans Proportion towards the Loss?

If £12350 — £5000 — £5000

20
100000
5000
12350 | 500000000 (40485
6000
10600
7200
1025

20 | 40485 (5
2024

If £12350 — £5000 — £3240

20
100000
100000
12350 | 324000000 (26234
7700
2990
4300
5900
1010

20 | 26234 | 14
1311

If £12350 — £5000 — £4110

20
100000
100000
12350 | 411000000 (33279
4050
3450
9000
11400
435

20 | 33279 | 19
1663

	£	£	
F	2024	1620	1215
G	1311	1050	789
H	1663	1330	998
Lose	£5000	£4000	£3000

Six Merchants make a Stock for Trade, J K L M N O whereof J Puts in £840 K 970, L 250, M 510, N 495, & O 714, whereby in ye. they had Traded a while they Gaind £2530 I Demand each Ones Particular share of ye Gain?

If 3779 — £2530 — £840

20
50600
840
2024000
404800
3779) 4250400 (1124 7
4714
9350
17920
28040
1567

2) 11247 (7
562

If 3779 — £2530 — £970

20
50600
970
3542000
455400
3779) 4908000 (1298 8
11292
37340
33290
30560
1348

2) 12988 (8
649

If 3779 — £2530 — £250

20
50600
250
2530000
101200
3779) 1265000 (334 7
13130
17930
20140
1687

2) 3347 (7
167

If 3779 — £2530 — £510

20
50600
510
5060000
253000
3779) 2580600 (682 8
31520
10080
33220
2980

2) 6828 (8
341

آثار

If £3779 — £2530 — £495

20
40600
495
253000
45540
2024
3779) 2504700 (6627
23730
10560
3020
3567

20) 6627 (7
331

If £3779 — £2530 — £714

20
50600
714
2024 00
50600
354200
3779) 3612840 (9560
21174
22790
1116 0

20) 9560 (0
478

The Gains of

	£	s	
I	562	07	1587/3779
K	649	08	0348/3779
L	167	07	1687/3779
M	341	08	2980/3779
N	331	07	2567/3779
O	478	00	1160/3779
Gain	2530	00	0000/0000

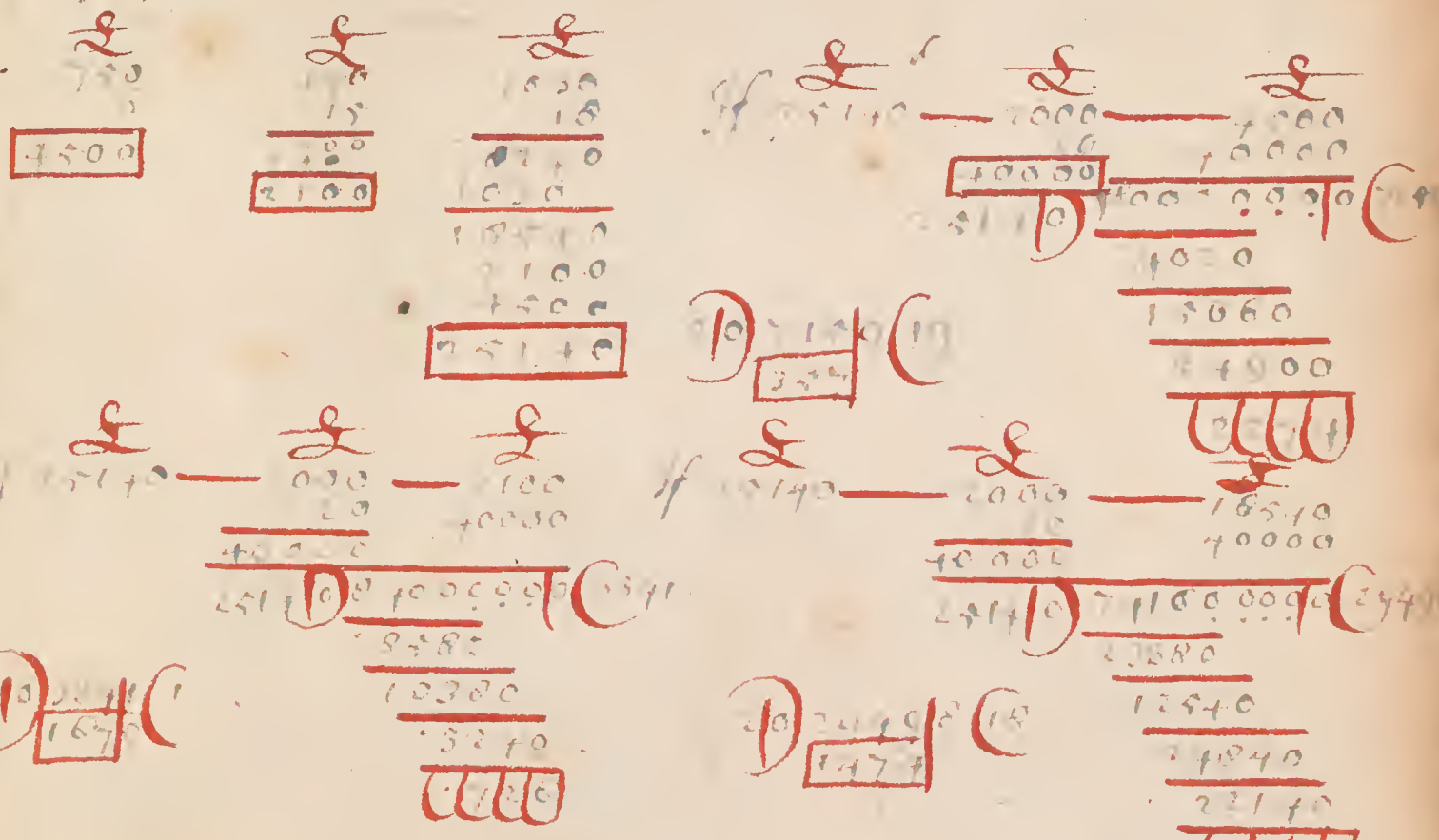
Double Fellowship

Double Fellowship, is when several Persons Entr Into Part:nor Ship for unequal time, that is, tho: every Mans Particular Stock, hath Relation to a Particular Time.
In ye Double Rule of Fellowship, multiply each Particular stock, by its Respective Time, & having added ye Several Products toge: ther, make their Sum ye first No: (or Term) in ye Rule of 3, & ye Total Gain or Loss ye 2d No:, & ye Product of any one Particular Stock by his Time, ye 3d No: & ye 4th No: in Proportion thereunto is his Particular Gain or Loss, whose Product of Stock & Time, is ye 3d No:
Then Repeat (as in Single Fellowship) the Rule of 3 as often as there are Products (or Partners) & ye 4th Terms thereby invented are ye Numbers requir'd.

Three Merchants P, Q & R Company

P puts In £750 for 6 Mo. £2140 for 14 Mo. R £1630 for 18 Mo.

whereby they gaind £2000 I Demand Each Mans Share of ye Profit?



The Gains of

	£	£	
P	357	19	2274/2514
Q	167	01	726/2514
R	1474	18	2028/2514
	2000	00	5005/5005

Four Merchants

ompany & Make a Stock whereof S puts in 314 - 13 - 04 for 7 Mo
S puts in 219 - 05 for 9 Mo, V puts in 473 - 17 - 09 for 12 Mo & W puts
in 96 - 07 - 06 for 14 Mo wherewith they Gain'd £1114 - 16 - 08 I
Demand each Mans Share of ye Gain?

£ s d
314 - 13 - 04
20
6293
12
75520
7
528640
47 3580
1364796
34 6950
2713966

£ s d
219 - 05
20
4385
12
52620
9
473580

£ s d
473 - 17 - 09
20
9477
12
113733
12
1364796

£ s d
96 - 07 - 06
20
1927
12
23130
5
115650
23130
346950

IF 2713966 —— £1114 - 16 - 08 —— 528640

20
22296
12
267560

2713966 | 141442910400 (52116
31718400
26432000
3706480
3171840
1057280
5744618
3166834
4528980
1815140
1066344

12 | 52116 | 0
20 | 4343 | 3
217

IF 2713966 —— £1114 - 16 - 08 —— 473580

20
22296
12
267560

2713966 | 126711064800 (46688
23669000
33146600
28414800
9471600
10152424
10669288
2402492 0
2313192 0
1420192

12 | 46688 | 0
20 | 3890 | 10
194

IF 2713966 —— £1114 - 16 - 08 —— 1364796

20
22296
12
267560

2713966 | 364164817760 (134550
81847760
68239800
9553572
8188776
2729592
937062 1
123492 37
14933737
13639760
1293977

12 | 134550 | 6
20 | 11212 | 12
560

IF 2713966 —— £1114 - 16 - 08 —— 346950

20
22296
12
267560

2713966 | 92829941000 (34204
20817000
17347500
2428650
2081700
693900
141089 63
55560 80
12304800
1466936

12 | 34204 | 4
20 | 2850 | 10
142

The Gains of
S —— 217 - 03 - 00 —— 1066344
C —— 194 - 10 - 08 —— 1420192
V —— 560 - 12 - 06 —— 692480
W —— 142 - 10 - 04 —— 1440936
2713966
1114 - 16 - 08

Two Merchants X Y Company, X put in £600, but at 7 Mo: end took out £150, & in 12 Mo: they gain £500. I Demand each ones share of ye Profit?

Y put in £800, at 9 Mo: end took out £200

600	800
7	9
4200	7200
2250	1800
6450	9000
9000	
15450	

IF £15450 —— £500 —— £6450 IF £15450 —— £500 —— £9000

500	500
15450 | 3225000 | £208	15450 | 4500000 | £291
13500	14100
11140	10500
	4055

The Gains { X —— £208 —— 1140/1545

Y —— 291 —— 405/1545

500

A B C make a Stock for 12 Mo & A puts in at first £ 1790 & 7 Mo after puts in £ 210 More, B put in £ 690 at first, & 9 Mo after puts in £ 310 More, C put in £ 2500 & at 4 Mo end withdraws £ 1200, & at y^e end of y^e Year they find they have gaind £ 2001 - 13 - 04, I Demand their several shares thereof according to Stock & Time?

1790 × 7 = 12530
1000 × 10 = 10000
22430
9210
26400
52140

1790 × 240 = 2000 × 5 = 10000

690 × 9 = 6210 × 3000 = 9210

690 × 310 = 1000 × 3 = 3000

2500 × 4 = 10000 × 10400 = 20400

1300 × 8 = 10400

If £ 52140 — £ 2001 - 13 - 04 — £ 22530

40023 × 20 = 480400 × 12

22530 × 480400 = 9012000 × 1802400 × 90120

100234130000 ÷ 52140 = 2075 83

12 | 2075 83 | 7
2 | 0 | 17296 | 18
641

39541
30432
43620
19080
3430

If £ 52140 — £ 2001 - 13 - 04 — £ 9210

40033 × 26 = 480400 × 13

480400 × 36840000 × 7368000 × 3684000

36840000 ÷ 52140 = 4 2447 2400 ÷ 52140 = 04047

24322
44724
30120
40400
4002

12 | 84057 | 5
2 | 0 | 7057 | 11
353

If £ 52140 — £ 2001 - 13 - 08 — £ 20400

40033 × 20 = 480400 × 13

480400 × 8160000 × 1632000 × 816000

81600000 ÷ 52140 = 980016000 ÷ 52140 = 1879 50

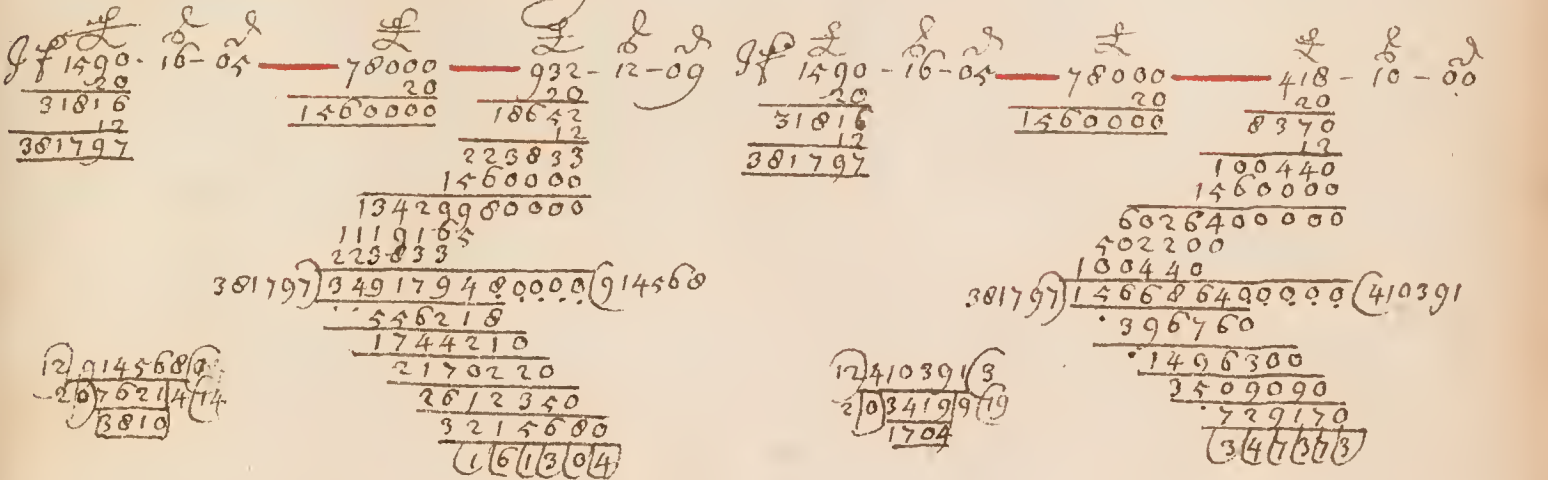
45861
41496
49980
30440
44700
4980

12 | 184958 | 2
2 | 0 | 15663 | 3
783

The Sums of { A — £ 864 — 10 — 07 — 3430 / 5214
B — 353 — 11 — 04 — 4002 / 5214
C — 783 — 03 — 02 — 2980 / 5214

2001 — 13 — 04

D, E, F, G, fit out a merchant Ship for Trading wch cost them £1490-16-05 whereof D Paid £932-12-09 E p. £418-10 F p. £141-17-00 & G p. £97-10-08 & Trading for Freight came to £145 but as she was returning home Laden richly with 78000 Livres, she is taken into France & blown up at y mouth of their Harbour by Accident & all Lost, what Proportion muſt each Man bear to the Damage?



The Gains of

	£	s	d	
D	3	8	10	161304/381797
E	1	7	09	347373/381797
F	0	5	79	395409/381797
G	0	3	99	341211/381797
	6	00	00	

The Rule of Allegation treateth of ye Mingling, or Concorporating of Diuers Simples into one Mass.

2. Allegation is Either Moorall or Alternate.

3. **Allegation Medial** is when ye Quantitie & Rates of ye Several Simples being Given, it's required to find a mean rate or rate for wch ye whole Mixture or any Part thereof may be afforded.

4. In Allegation Medial the Proportion is,
as ye Total quantitie of ye Simples is.
To ye Total Value of them all.
So is any Part of ye Mixture,
To ye Mean rate required.

A Wine Cooper Mingles 17 Gallons of Canary at 10 ℔ Gallon with 19 Gallons of Malago at 9 1/2 ℔ Gallon, with 12 Gallons of Sherry at 7 1/4 ℔ Gallon, with 23 Gallons of Claret at 6 ℔ Gallon, & with 18 Gallons of Lisbon at 8 ℔ Gallon, I Demand what a Gallon of this mixture is worth?

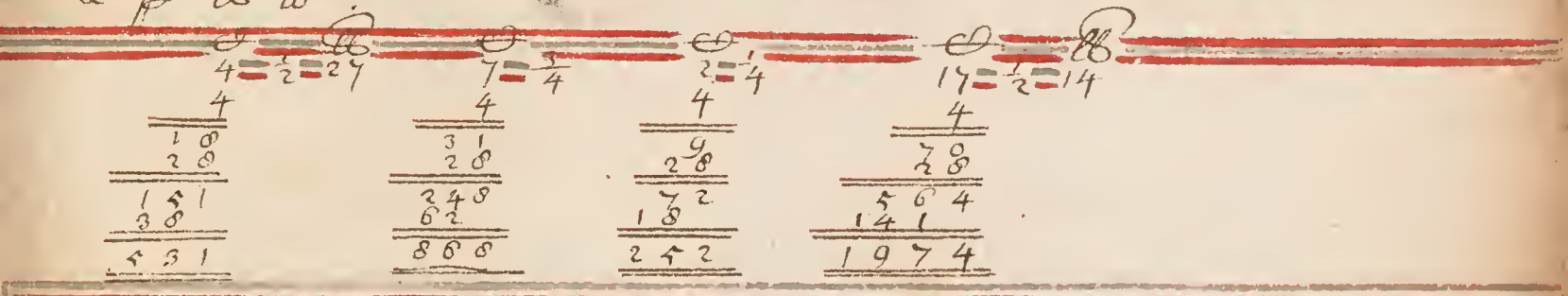
17 Gallons of Canary	att	10	℔ Gallon	Comes to	08	10 — 00
19 Gallons of Malago	att	09	2 ℔ Gallon	Comes to	08	14 — 02
12 Gallons of Sherry	att	07	4 ℔ Gallon	Comes to	04	08 — 00
23 Gallons of Claret	att	06	0 ℔ Gallon	Comes to	06	18 — 00
18 Gallons of Lisbon	att	08	0 ℔ Gallon	Comes to	07	04 — 00
89					35	14 — 02

IF $\overset{\text{Gallons}}{89}$ —— $\overset{£}{35} - \overset{s}{14} - \overset{d}{02}$ —— G^{n}_{1}

$$\begin{array}{r} 20 \\ \hline 714 \\ 12 \\ \hline 89)\,8570\,(96 \\ 560 \\ \hline 250 \end{array}$$

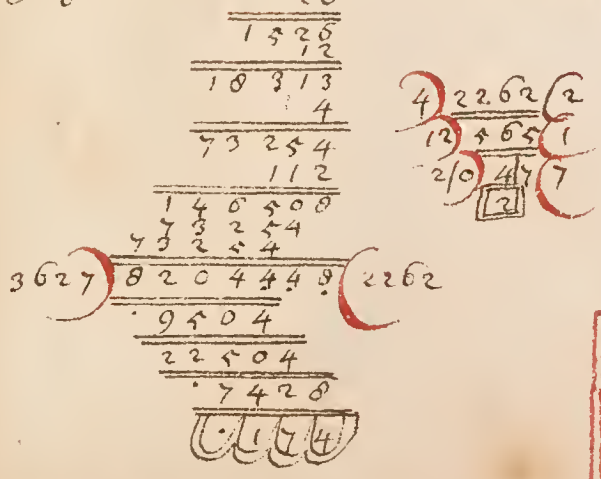
Answer —— 08 —— ℔ —— Gallon

A Grocer mixes 4 - ½ - 27 lb of Sugar at £4/10 p lb wt, with 7 - ¾ of Sugar att 3s ¾ p lb with 2 - ¼ of Sugar at 2s/½ p lb & with 17 - ½ - 14 lb att 2s ¾ p lb I Demand how much of all ixtwo is worth p lb wt & p lb wt?

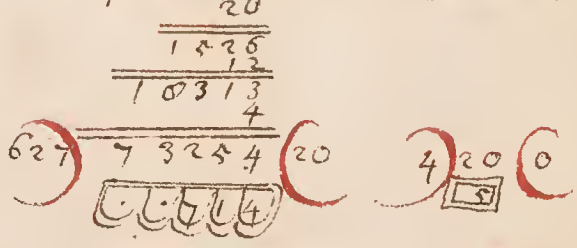


531	att	£ 4	10	00	p lb wt	comes to	£ 20	04	04
868	att	00	00	03 ¾	p lb wt	comes to	13	11	03
252	att	00	00	02 ½	p lb wt	comes to	02	12	06
1974	att	00	00	04 ¾	p lb wt	comes to	39	18	00 ½
3627							76	06	01 ½

If lb 3627 — £ 76 - 06 - 01 ½ — lb 112



If lb 3627 — £ 76 - 06 - 01 ½ — lb 1



Answer

£ 02	07	01 ½	p lb wt
00	00	04	p lb wt

Allegation Alternate

Allegation Alternate is when ye Prics of ye Several Simples is given, & such a Quantity of Each required as may make a Mixture ye will bear a Certain Mean Rate Propos'd.

Alternate Allegation is either Total or Partial.

Allegation Total is when ye Sum of ye Quantitys being given, it is Required to Find out how much of Each Ingredient ye Mixture must Consist of. To Effect which you must Place ye Prices of ye Several Simples in Such order yt ye Greatest stand in ye Highest Place, & ye Next Inferior Rate exactly under it; & so Proceed with ye Next Successively placing ye Mean Rate or Price, on ye left hand of ye said Prices or Rates.

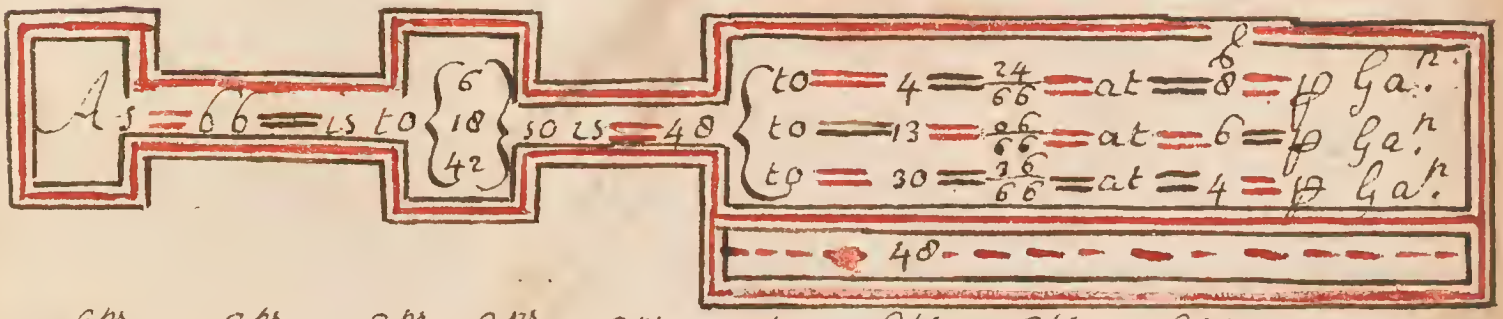
A Wine Cooper hath Several Sorts of White Wine, as of 8s ℔ Gallon, of 6s ℔ Gallon, & of 4s ℔ Gallon & would make a Mixture of 48 Gallons, that shall be worth 6s ℔ Gallon. I Demand how much of each Sort he must Take?

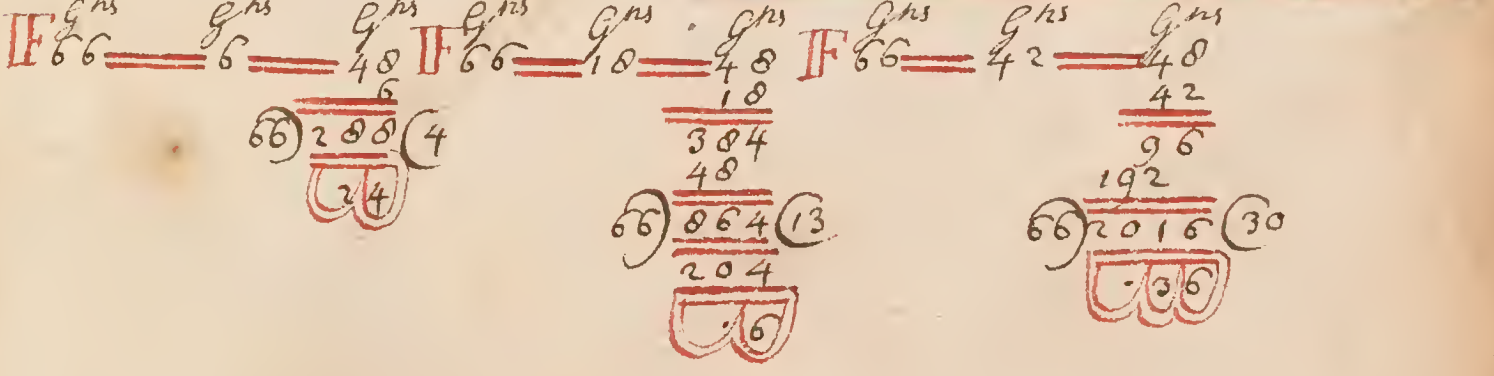
The Mean Rate 6s

96
72
48

6
18
42

66





A Merchant hath Several sorts of Roost Scontod, & Oronooko Tobacco, of 22. ℔ ℔, of 20 ℔ ℔ of 16. & of 10. ℔ ℔, out of wch he would make a mixture of 3 Hundred wt. worth 18. ℔ ℔, how much of each Sort must he Take?

The Mean Rate 18 { 22, 20, 16, 10 }

4
2
2
8

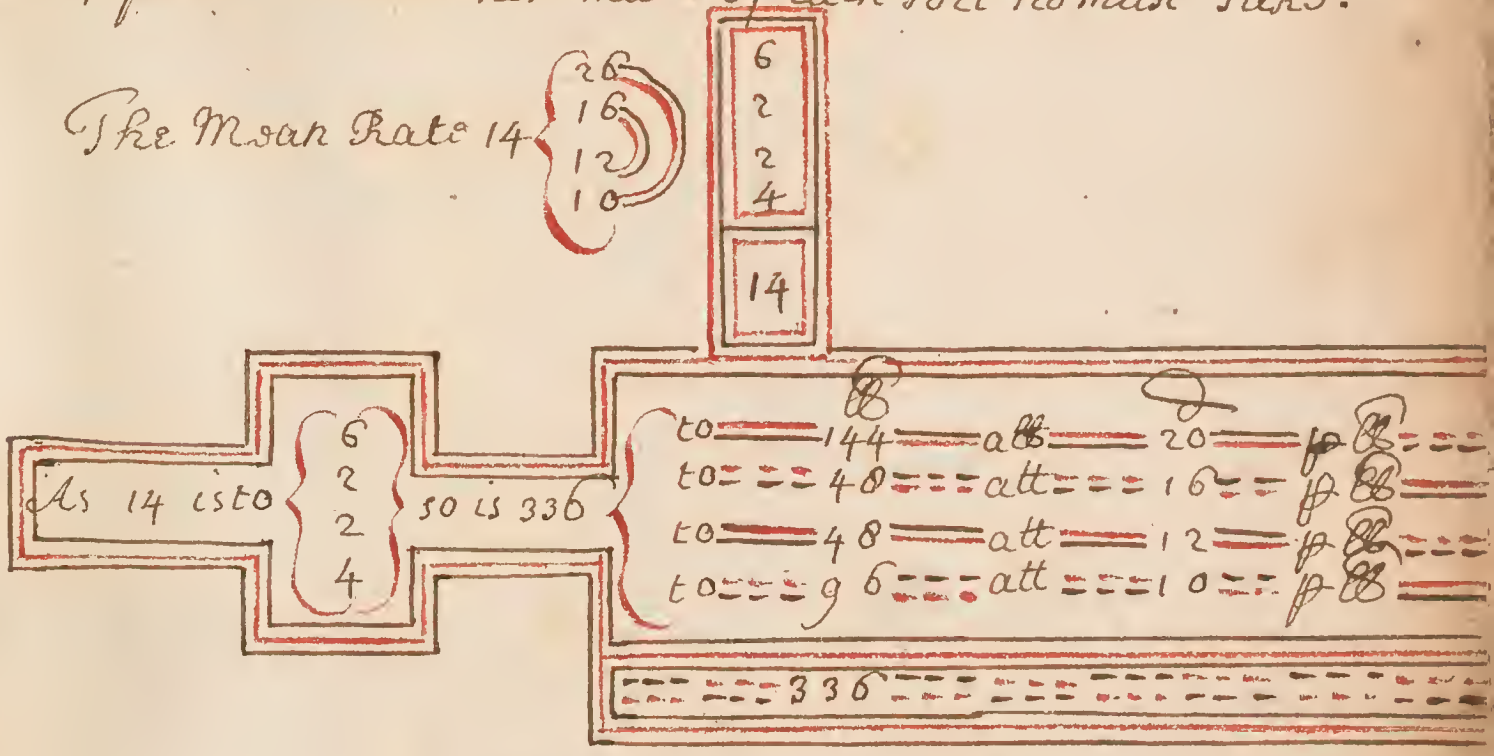
16

As 16 is to { 4, 2, 2, 8 } £ sols 300

to 84 att 22 ℔ ℔
to 42 att 20 ℔ ℔
to 42 att 16 ℔ ℔
to 160 att 10 ℔ ℔

336

A Grocer hath 4 Sorts of Sugar, 1 of 20 ℔ ℔ another of 16 ℔ ℔, another of 12 ℔ ℔ & another of 10 ℔ ℔, out of which he would make a Mixture of 336 ℔ to be afforded at 14 ℔ ℔; I Demand how much of each Sort he must Take?



If 14 — 6 — 336 If 14 — 2 — 336 If 14 — 2 — 336 If 14 — 4 — 336

14 | 2016 (144 6 — 61 — 56

14 | 672 (48 2 — 112

14 | 672 (8 2 — 112

14 | 1344 (96 4 — 84

A Goldsmith hath Gold of Several Sorts of finess viz: of 24 Carrats fine, of 12 Carrats fine, of 20 Carrats fine, & of 15 Carrats fine, & he would mingle them so as to have a Mass of 28 Oz: of Gold 17 Carrats fine, I Demand how much of Each Sort he must Take?